



FUJIX-8
VIDEO
SYSTEM

8

SCHEMATICS



V04259

AE/UK Models

FUJIX-8 CAMCORDER

FF120SW

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repairs for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK Δ OR DOTTED LINE WITH MARK Δ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH FUJI PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY FUJI PHOTO FILM CO., LTD.

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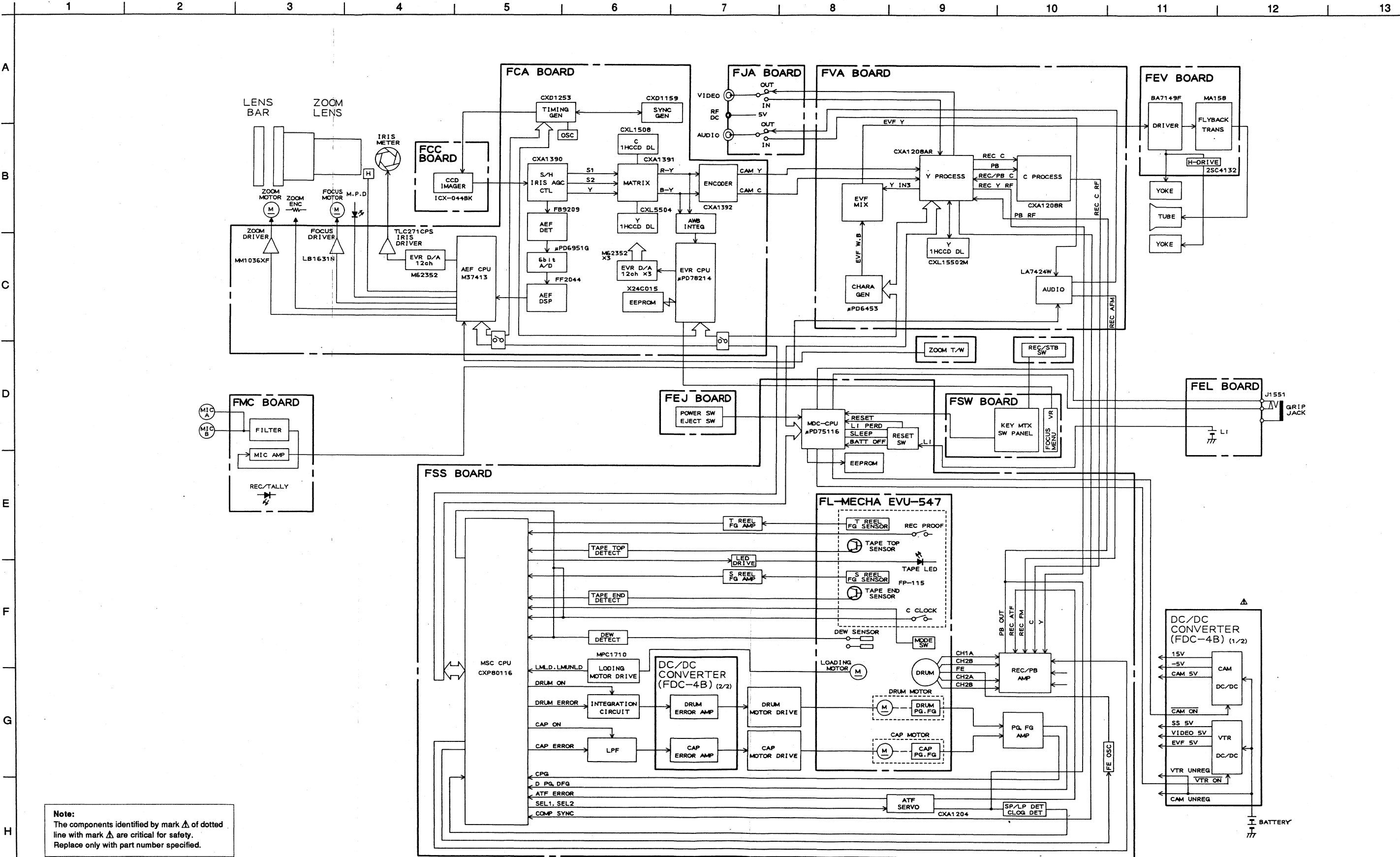
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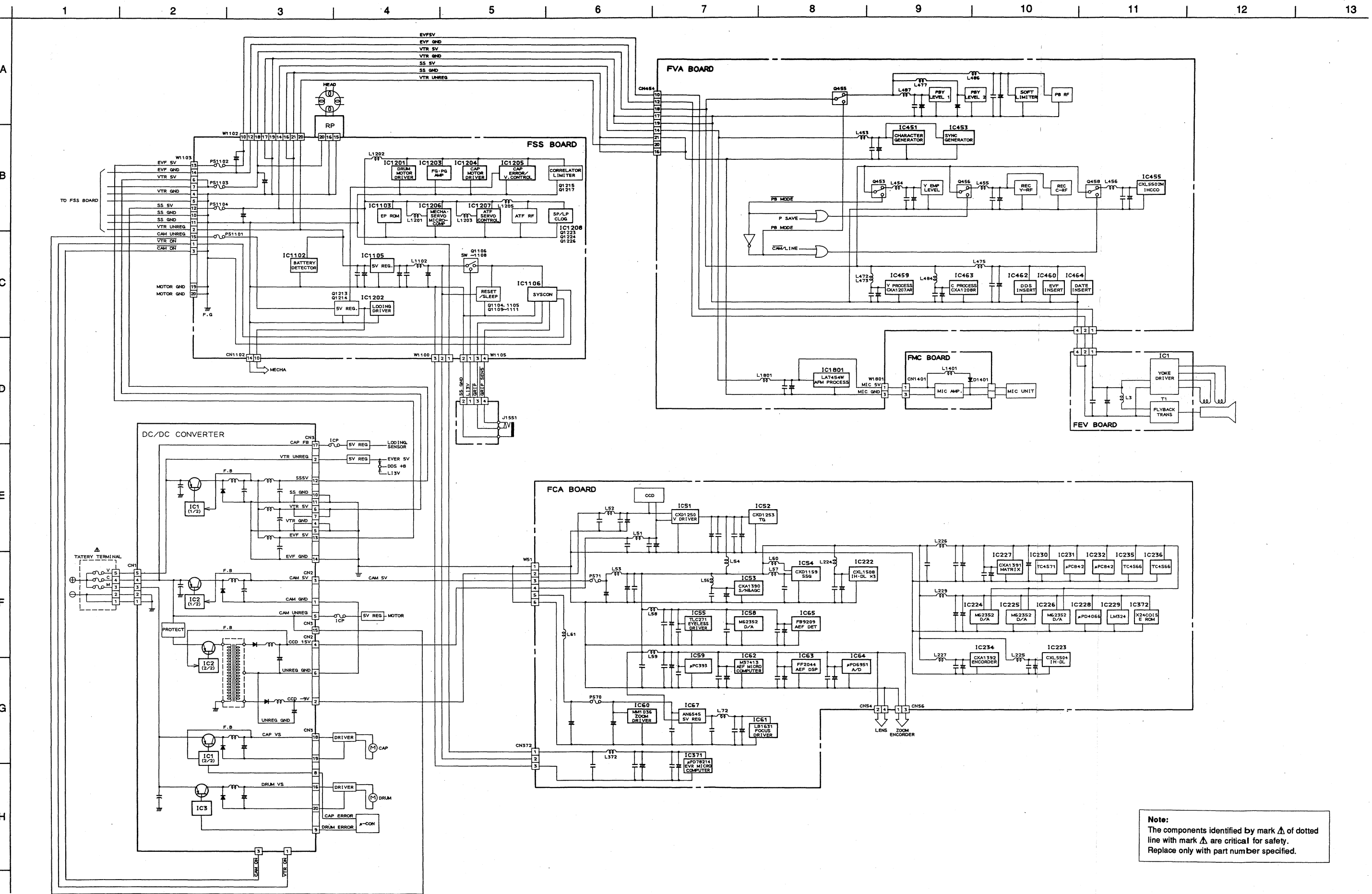
1 Block Diagrams

1. BLOCK DIAGRAMS

1-1. OVERALL BLOCK



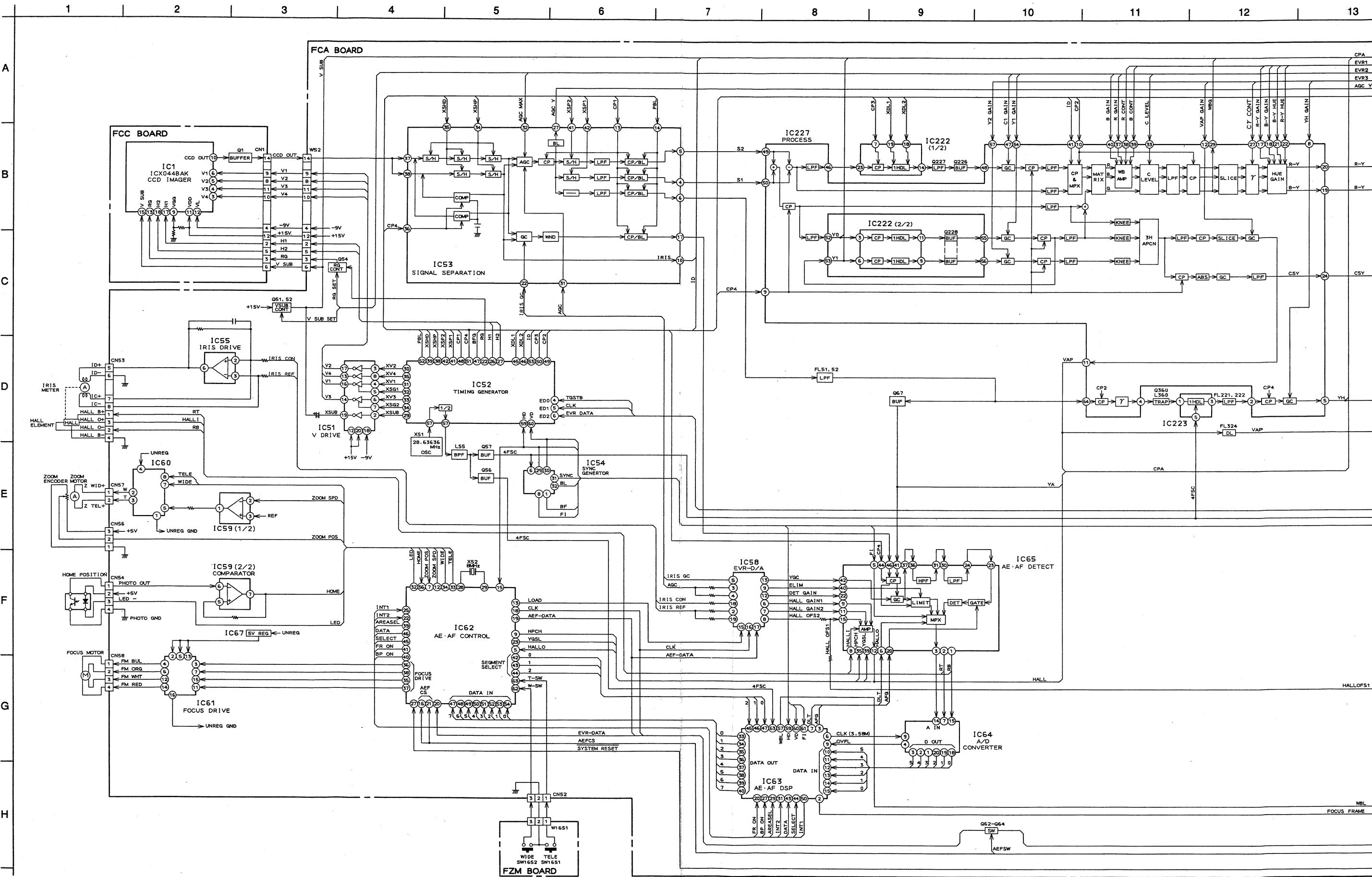
1-2. POWER SUPPLY BLOCK



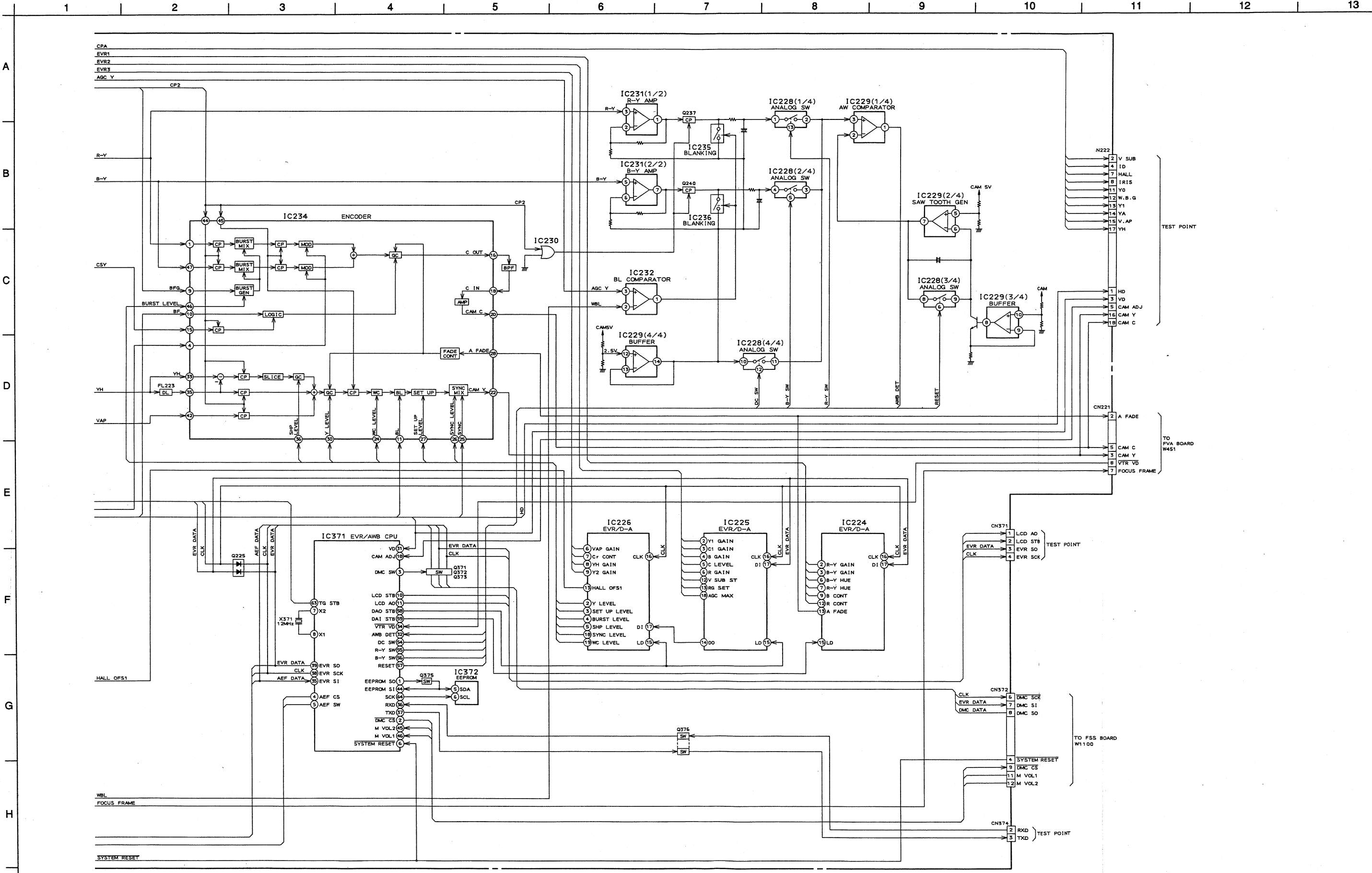
Note:
The components identified by mark Δ of dotted line with mark Δ are critical for safety.
Replace only with part number specified.

1 Block Diagrams

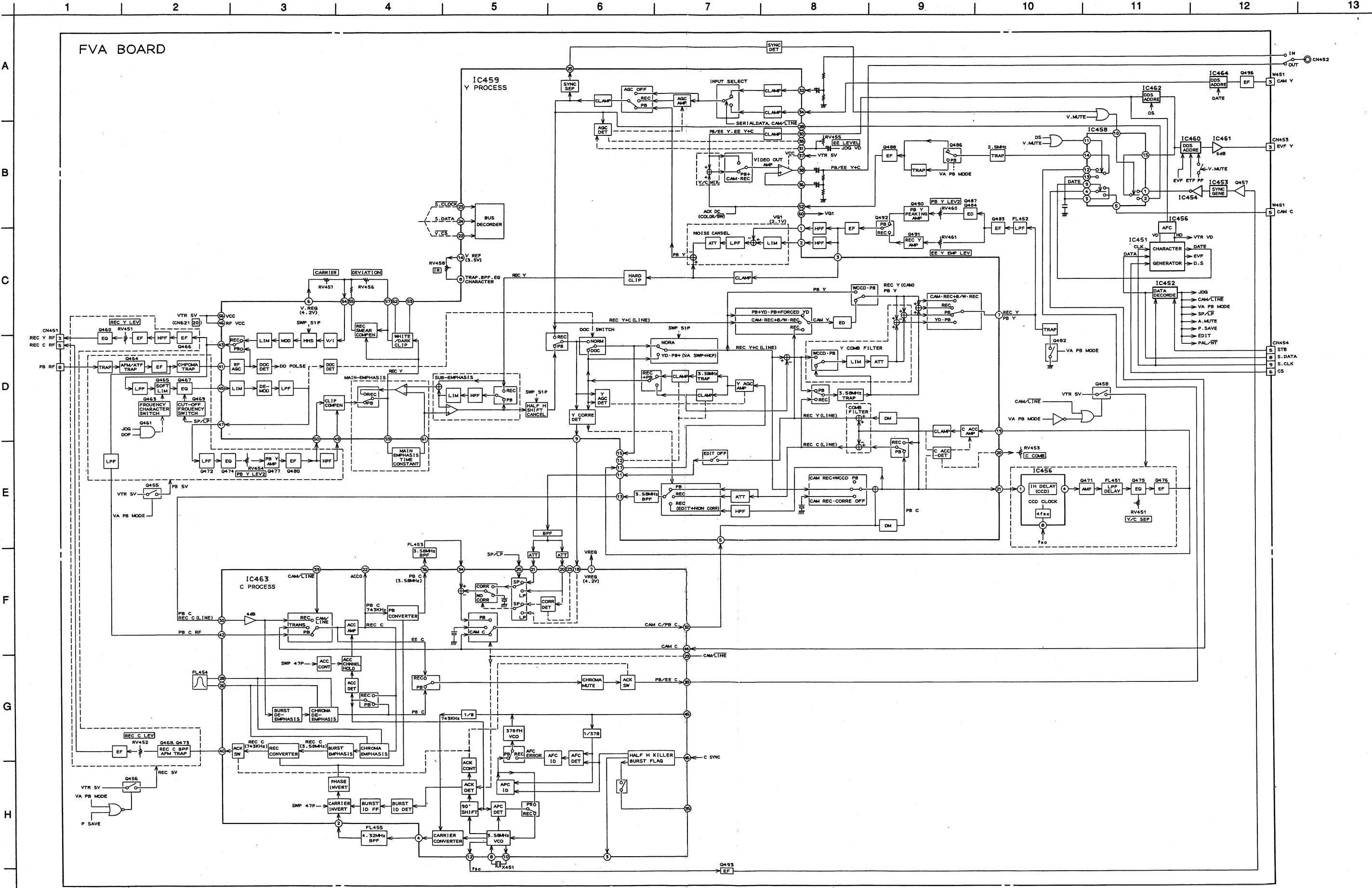
1-3. CAMERA BLOCK
1-3-1. CAMERA BLOCK (1/2)



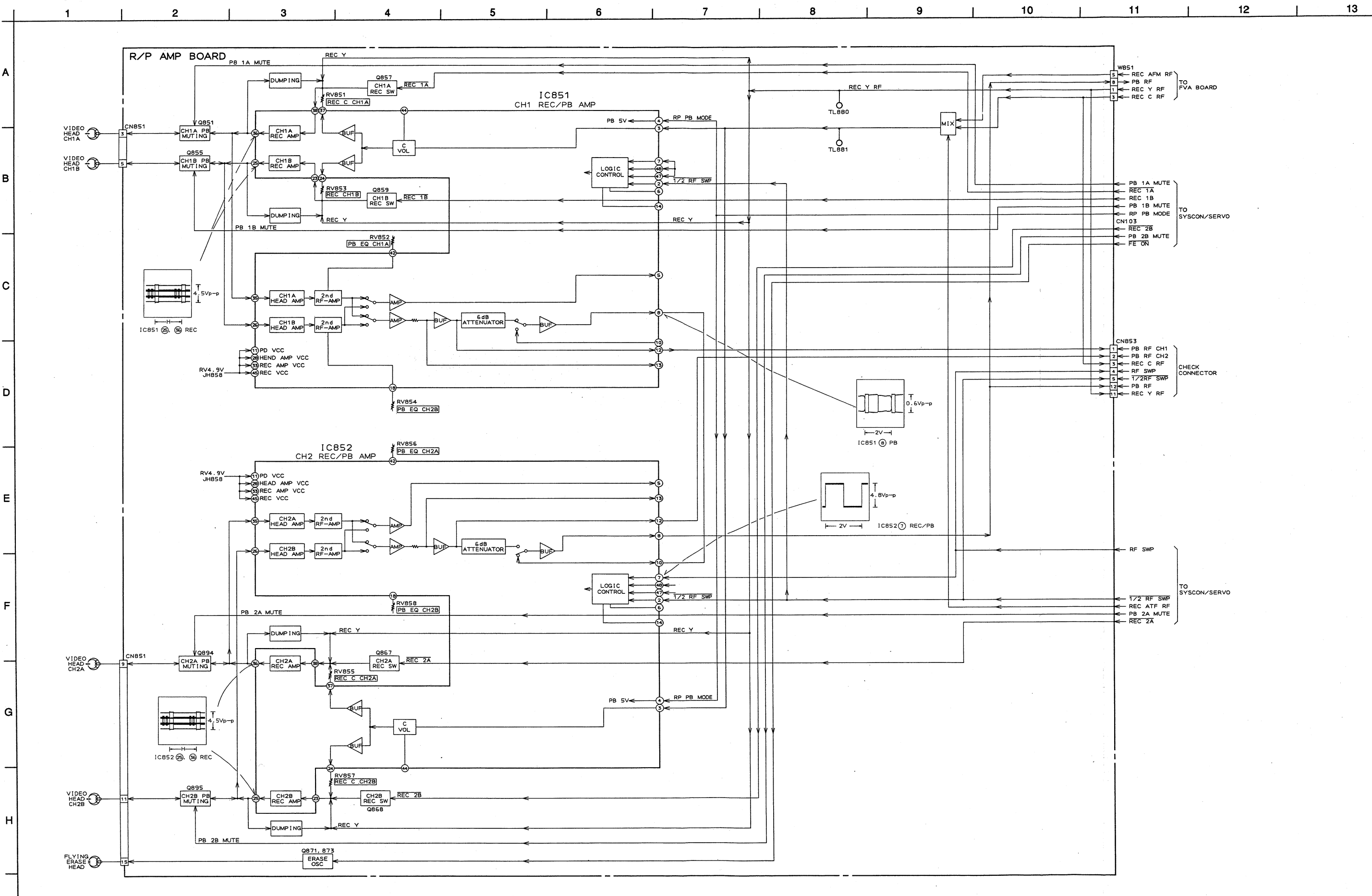
1-3-2. CAMERA BLOCK (2/2)



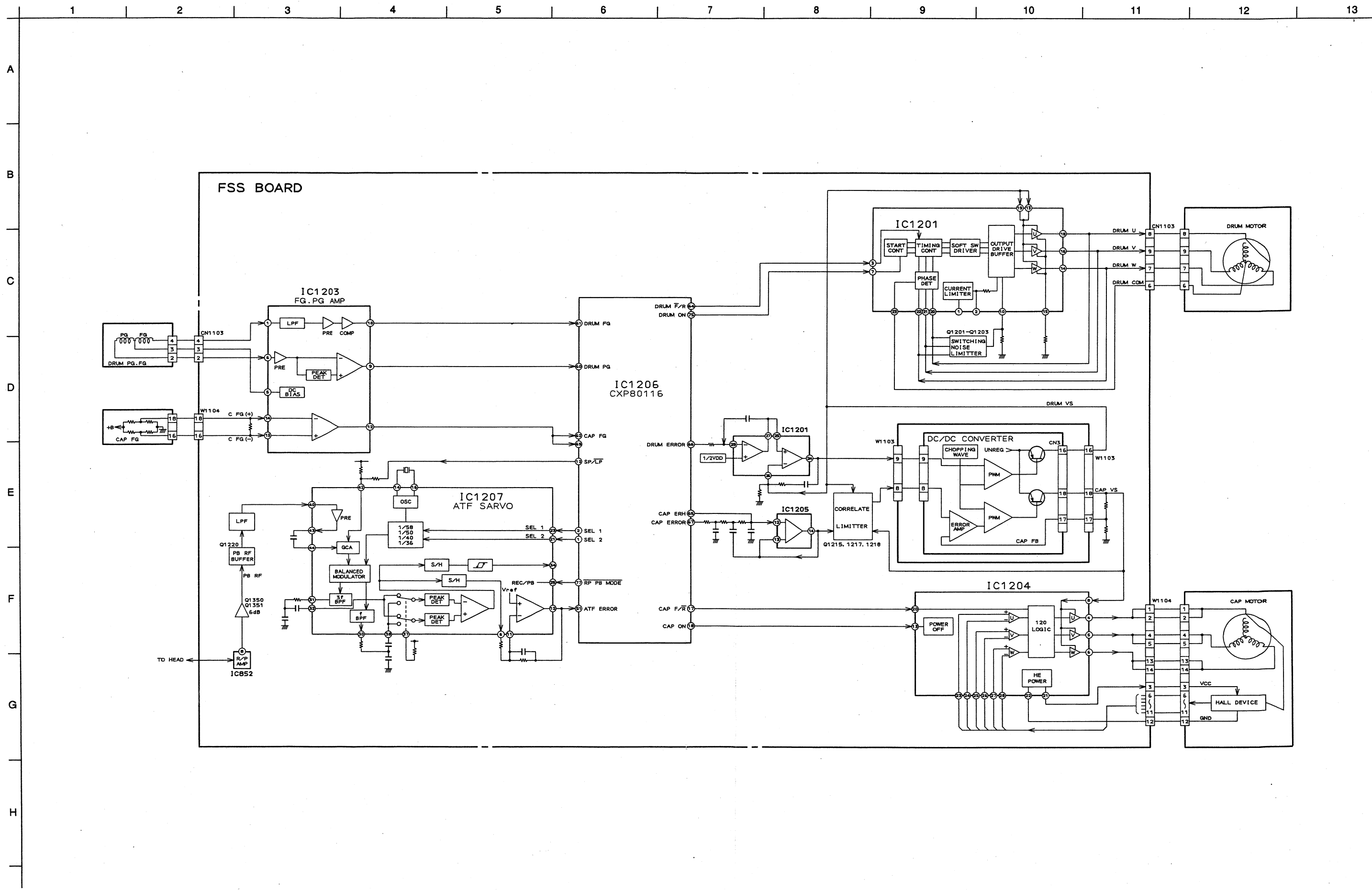
1-4. VIDEO BLOCK



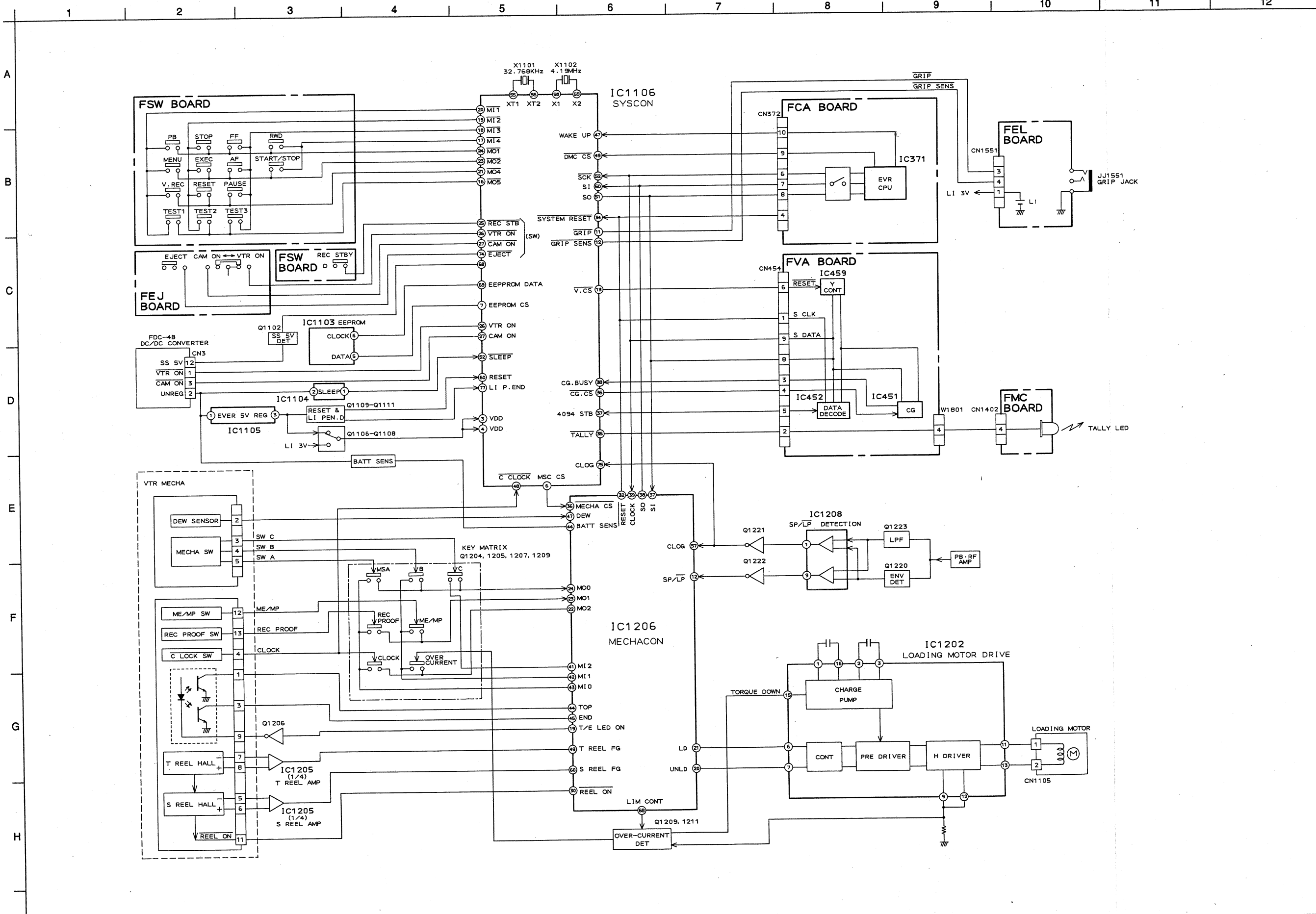
1-5. REC/PB AMP BLOCK



1-6. SERVO BLOCK



1-7. SYSCON BLOCK



Pin Assign

PINS	PORTS
1	ANO
2	AVREF
3	VDD
4	VPP
5	P113
6	P112
7	P111
8	P110
9	P103
10	P102
11	P101
12	P100
13	P93
14	P92
15	P91
16	P90
17	P83
18	P82
19	P81
20	P80
21	P73
22	P72
23	P71
24	P70
25	P63
26	P62
27	P61
28	P60
29	P53
30	P52
31	P51
32	P50
33	GND
34	P43
35	P42
36	P41
37	P40
38	P33
39	P32
40	P31

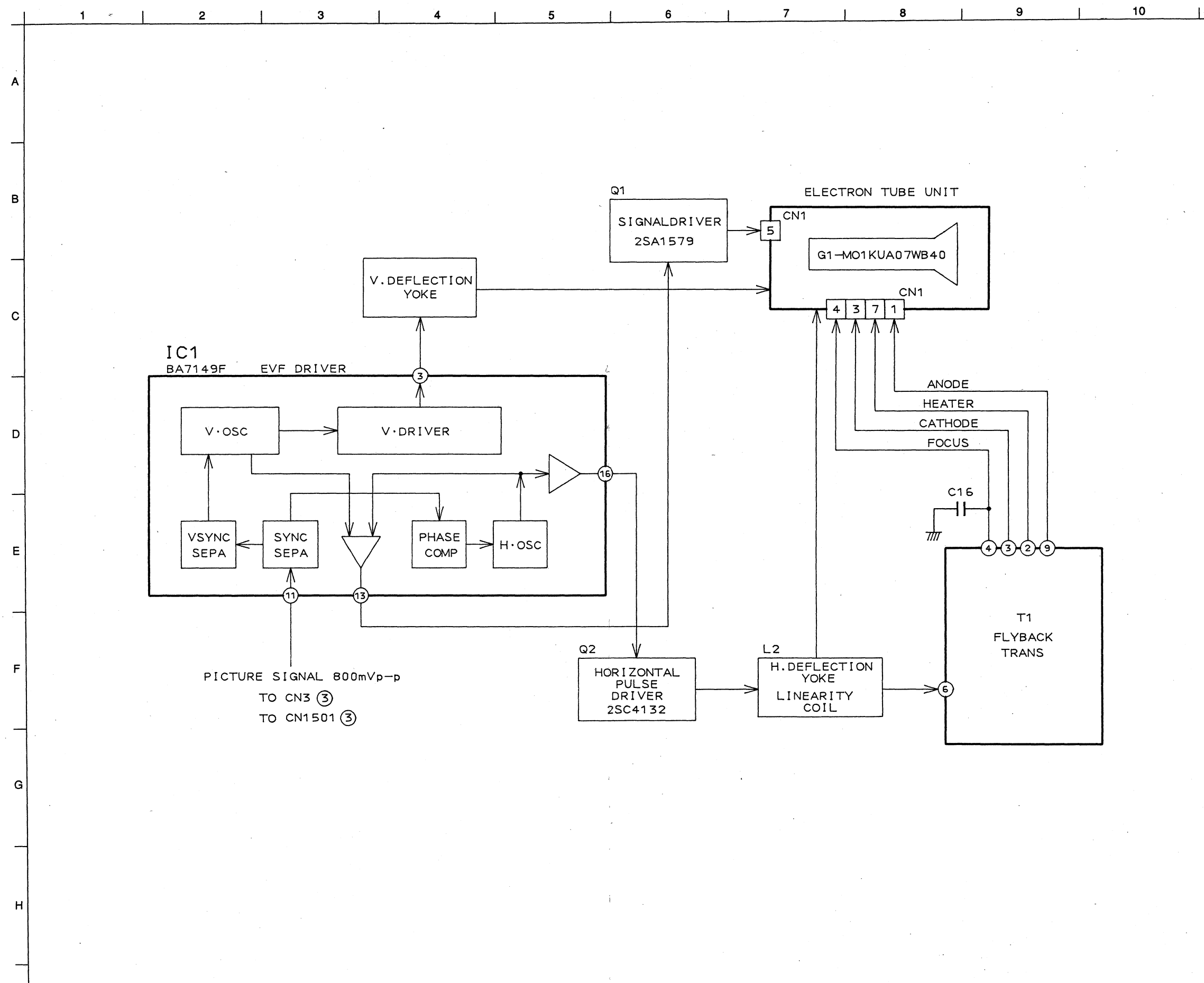
Pin Assignment and Functions of CPU (IC1106)

PINS	PORTS	Signals	I/O	PULL UP POINTS	FUNCTIONS	INITIAL STATES																														
1	ANO	GND	—	—	GND	L																														
2	AVREF	P113	I	—	A/D Converter Standard Voltage Input	H																														
3	VDD	VDD	—	—	Power Source Input : EVER 5V	H																														
4	VPP	VDD	—	—	PROM Voltage	H																														
5	P113	AVREF	O	Push-pull	Switching, A/D Converter Standard Voltage Input	L																														
6	P112	MSC CS	O	Push-pull	Mecha./Servo CPU (CXP-80116) Communication Chip Select	H																														
7	P111	EEP. SCK	O	Push-pull	EEPROM Clock OSC Output	H																														
8	P110	TEST LED	O	Push-pull	LED "H" ON in Test Mode	L																														
9	P103	MODE SEL1	I	EVER5V	0	L																														
10	P102	MODE SEL2	I	EVER5V	1	H																														
11	P101	GRIP SW	I	47k, SS5V	GRIP SW Input	Hiz																														
12	P100	GRIP SENS	I	47k, SS5V	GRIP Code IN/OUT Detection Input	Hiz																														
13	P93	NC	—	—	—	—																														
14	P92	NC	—	—	—	—																														
15	P91	MO6	O	Push-pull	<table><tr><th>O \ I</th><th>MI1</th><th>MI2</th><th>MI3</th><th>MI4</th></tr><tr><td>MO1</td><td>PB PB Read ROM</td><td>STOP STOP Write ROM</td><td>FF FE Data UP</td><td>REW REW DataDOWN</td></tr><tr><td>MO2</td><td>MENU LP EMRG OFF</td><td>Zero Memo Zero Path Adjustment</td><td>AF Mecha.+VTR Clear</td><td>S/S EJECT —</td></tr><tr><td>MO3</td><td>Color V. REC</td><td>Out2 RESET</td><td>In1 SP</td><td>FADE —</td></tr><tr><td>MO4</td><td>V. REC V. REC</td><td>RESET RESET</td><td>PAUSE SP</td><td>— —</td></tr><tr><td>MO5</td><td>T1</td><td>T2</td><td>T3</td><td>—</td></tr></table> STOP : Functionable in T2 mode and POWER SW is "VTR" Write ROM : Functionable in T2 mode and POWER SW is "CAM"	O \ I	MI1	MI2	MI3	MI4	MO1	PB PB Read ROM	STOP STOP Write ROM	FF FE Data UP	REW REW DataDOWN	MO2	MENU LP EMRG OFF	Zero Memo Zero Path Adjustment	AF Mecha.+VTR Clear	S/S EJECT —	MO3	Color V. REC	Out2 RESET	In1 SP	FADE —	MO4	V. REC V. REC	RESET RESET	PAUSE SP	— —	MO5	T1	T2	T3	—	H
O \ I	MI1	MI2	MI3	MI4																																
MO1	PB PB Read ROM	STOP STOP Write ROM	FF FE Data UP	REW REW DataDOWN																																
MO2	MENU LP EMRG OFF	Zero Memo Zero Path Adjustment	AF Mecha.+VTR Clear	S/S EJECT —																																
MO3	Color V. REC	Out2 RESET	In1 SP	FADE —																																
MO4	V. REC V. REC	RESET RESET	PAUSE SP	— —																																
MO5	T1	T2	T3	—																																
16	P90	MO5	O	Push-pull		H																														
17	P83	MI4	I	47k, EVER 5V		Hiz																														
18	P82	MI3	I	47k, EVER 5V		Hiz																														
19	P81	MI2	I	47k, EVER 5V	Hiz																															
20	P80	MI1	I	47k, EVER 5V	Hiz																															
21	P73	MO4	O	Push-pull	H																															
22	P72	NC	—	—	—																															
23	P71	MO2	O	Push-pull	H																															
24	P70	MO1	O	Push-pull	H																															
25	P63	STBY SW	I	100k, EVER5V	STBY SW Input	Hiz																														
26	P62	VTR SW	I	100k, EVER5V	VTR SW Input	Hiz																														
27	P61	CAM SW	I	100k, EVER5V	CAM SW Input	Hiz																														
28	P60	GND	—	—	Monaural Mode	L																														
29	P53	NC	—	—	Monaural Mode	—																														
30	P52	NC	—	—	Monaural Mode	—																														
31	P51	NC	—	—	Monaural Mode	—																														
32	P50	NC	—	—	—	—																														
33	GND	GND	—	—	GND	—																														
34	P43	SYSRESET	O	47k, SS5V	Reset Output for Character Generator of EVR/MSC/Remo-Con CPU and Title IC	L																														
35	P42	TALLY	O	Direct	Tally LED Control Output	H																														
36	P41	CG CS	O	47k, SS5V	Character Generator Chip Select Output	H																														
37	P40	STB	O	47k, SS5V	Serial/Parallel IC STB	H																														
38	P33	CG BUSY	I	Direct to FVA	Character Generator BUSY Input	Hiz																														
39	P32	GND	I	Direct to FVA	GND	L																														
40	P31	GND	I	Direct to FVA	GND	L																														

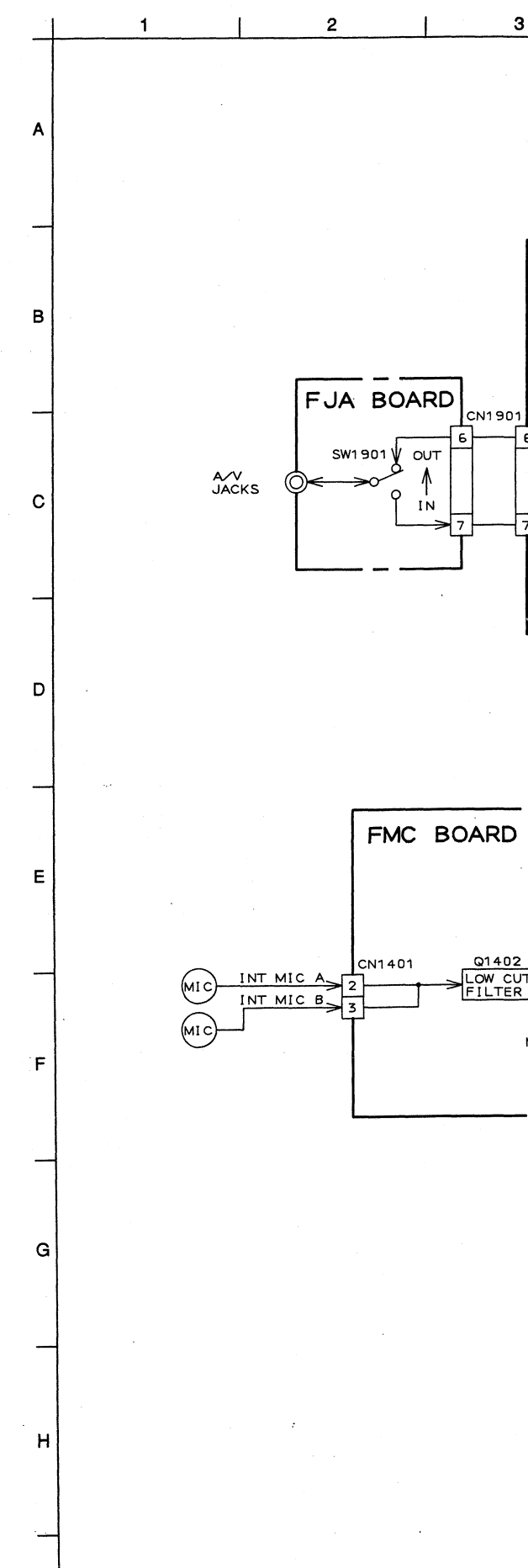
PINS	PORTS	Signals	I/O	PULL UP POINTS	FUNCTIONS	INITIAL STATES
41	P30	NC	—	—	—	—
42	P23	V. MUTE	O	Push-pull	Video Mute Control Output	L
43	P22	V. CS	O	Push-pull	Video Chip Select Output/122.073μsec Adjustment in TEST 1 Mode	H
44	P21	NC	—	—	—	—
45	P20	NC	—	—	—	—
46	P13	GND	I	Direct	GND	L
47	INT2	GND	I	47k, EVER5V	GND	L
48	INT1	C. LOCK	I	47k, EVER5V	Cassette Control Lock Input	Hiz
49	INT0	DMC CS	I	47k, EVER5V	DMC CPU (μPD75516) Communication Chip Select Input	Hiz
50	SI0	SI	I	47k, SS5V	Serial Data Input	Hiz
51	SO0	SO	O	Push-pull	Serial Data Output	H
52	SCK0	SCK	IO	47k, SS5V	Serial Clock Input/Output	H
53	INT4	SLEEP	I	100k, EVER5V	Power Source Detection Input	Hiz
54	GND	GND	—	—	GND	L
55	XT1	XT1	—	—	Clock OSC Input 32.768kHz	Hiz
56	XT2	XT2	—	—	Clock OSC Output 32.768kHz	Hiz
57	IC	GND	—	—	GND	L
58	X1	X1	—	—	Main OSC Input 4.194304MHz	Hiz
59	X2	X2	—	—	Main OSC Output 4.194304MHz	Hiz
60	RESET	RESET	I	100k, DDS+B	Reset Input	Hiz
61	P143	EVF ON	O	47k, SS5V	EVF Control Output	L
62	P142	VTR ON	O	47k, EVER5V	VTR DC/DC Control Output	L
63	P141	CAM ON	O	47k, EVER5V	CAM DC/DC Control Output	H
64	P140	NC	—	—	—	—
65	P133	GND	—	—	GND	L
66	P132	GND	—	—	GND	L
67	P131	SS5V	I	—	—	—
68	P130	5V EMERG	I	47k, EVER5V	SS5V Abnormal Detection Input	Hiz
69	P123	EEP. DAT	IO	47k, SS5V	EEPROM Data Input/Output	H
70	P122	GND	—	—	GND	L
71	P121	GND	—	—	GND	L
72	P120	GND	—	—	GND	L
73	AGND	GND	—	—	GND	L
74	P153	EJECT SW	I	100k, EVER5V	EJECT SW Input	Hiz
75	P152	CLOG	I	10k, SS5V	Clog Detection Input	Hiz
76	P151	BATT OFF	I	100k, EVER5V	Battery Out Detection Input	H
77	P150	Li. PE	I	1M, DDS+B	Lithium Pre-end Detection Input	H
78	AN3	UNREG DET	I	UNREG	Battery Voltage Detection A/D Input	H
79	AN2	5VEMERG	I	SS5V	SS5V Voltage Detection A/D Input	H
80	AN1	GND	—	—	GND	L

1 Block Diagrams

1-8. VIEWFINDER BLOCK



1-9. AUDIO BLOCK



2. SCHEMATIC DIAGRAMS

2-1. NOTES for SCHEMATIC DIAGRAMS

This NOTE is common for Schematic Diagrams. (In addition to this, the necessary note is printed in each block.)

[For schematic diagrams]

- Caution when replacing parts.
New parts must be attached after removal of chip.
Be carefull not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
 - All resistors are in ohms, 1/4W unless otherwise noted.
Chip resistors are 1/16W unless otherwise noted.
k Ω : 1000 Ω , M Ω : 1000k Ω .
 - All capacitors are in μ F unless otherwise noted.
pF: μ F.
50V or less are not indicated exept for electrolytics and tantalums.
 - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
 -  : Nonflamable resistor.
 -  : Fusible resistor.
 -  : Panel designation.
 -  : Internal component.
 -  : Adjustment for repair.
 -  : B+ Line.*
 -  : B- Line.*
 -  : IN/OUT indication of (+, -) B LINE.*
 - Circled numbers refer to waveforms.*
- *: Indicated by the color red.

Note:

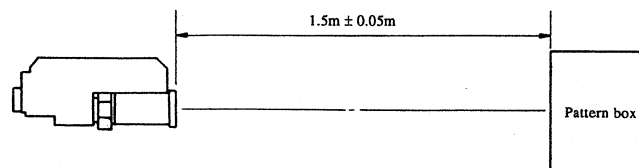
The components identified by mark  of dotted line with mark  are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

**[Measuring conditions, voltage value and waveform]
(CAMERA, DIGITAL TITLE block)**

- The object is color bar chart or pattern box.
- Voltages are dc between ground and measurment points.
Readings are taken with a digital multimeter (DC 10M Ω).*
- Voltage variations may be noted due to normal production tolerance.*

1. Connection



Lens reference plane
surface imaging surface
of CCD imager
(IC901 on CD-66 board)

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

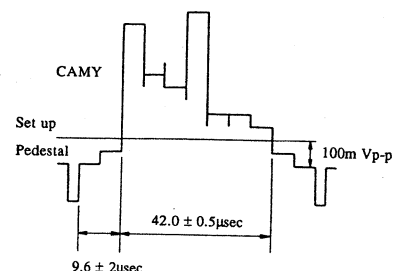


Fig. a (Video output terminal output waveform)

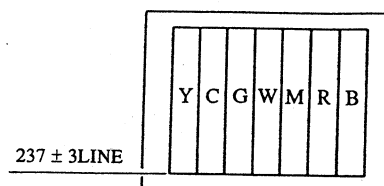
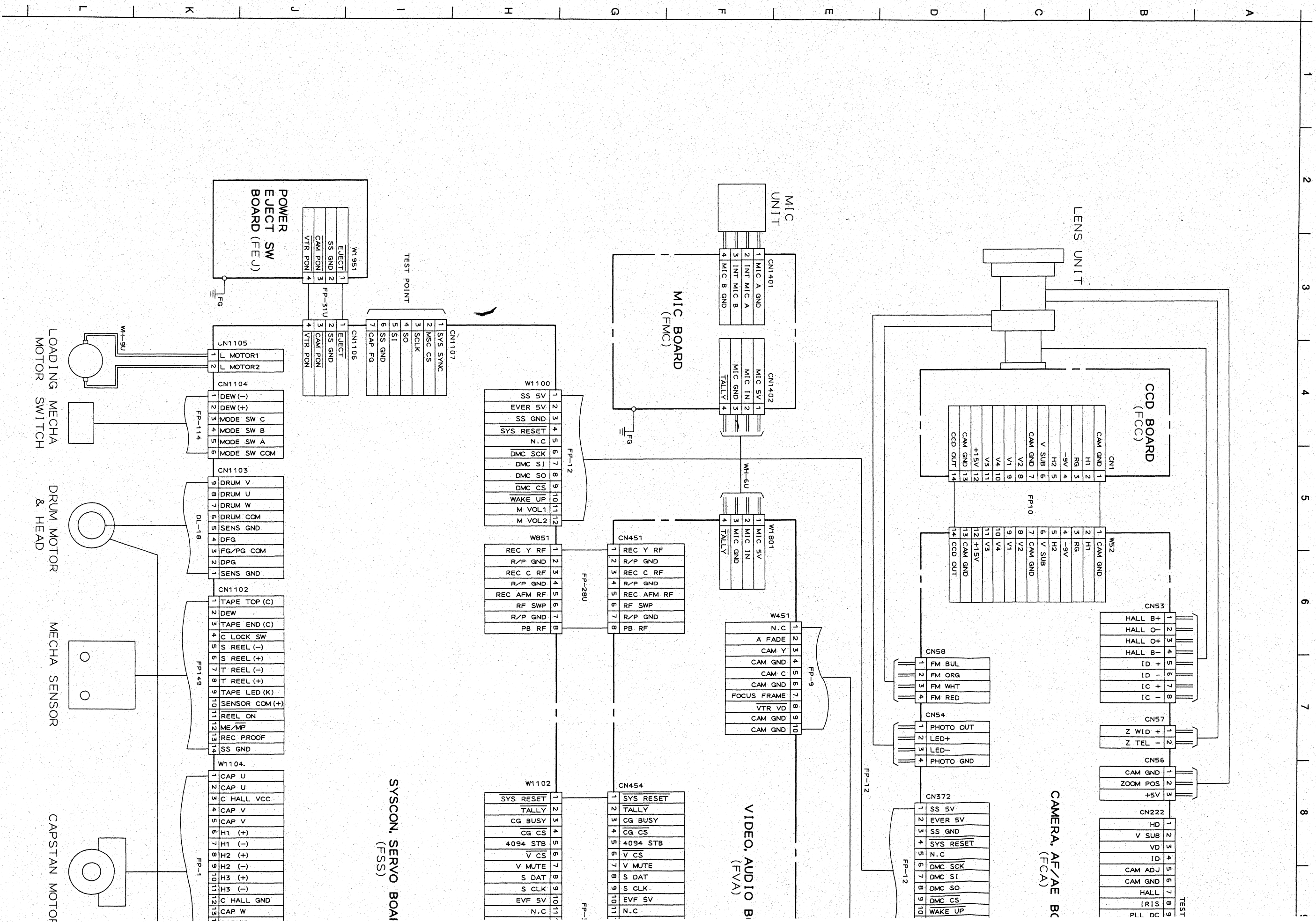


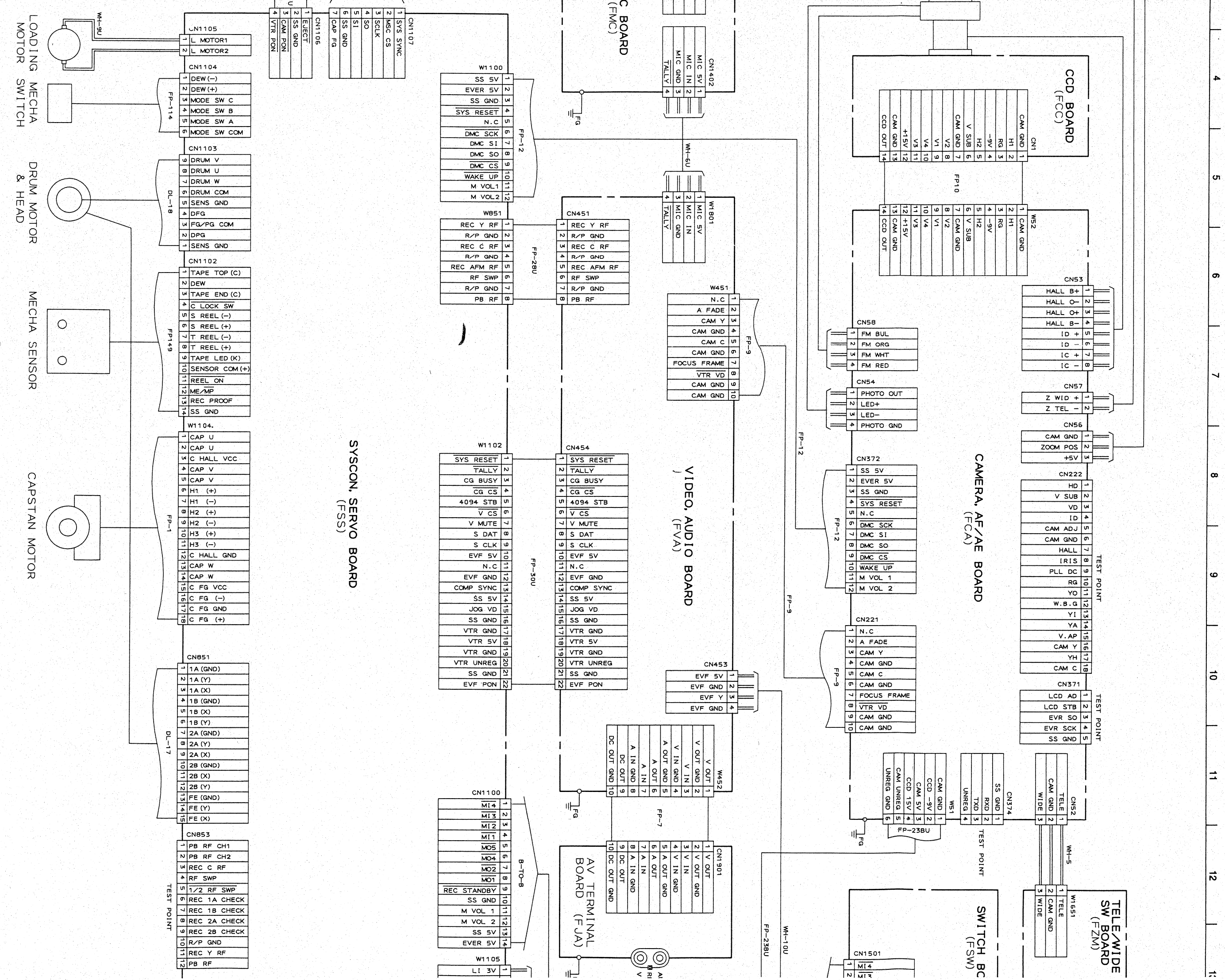
Fig. b (Picture on monitor TV)

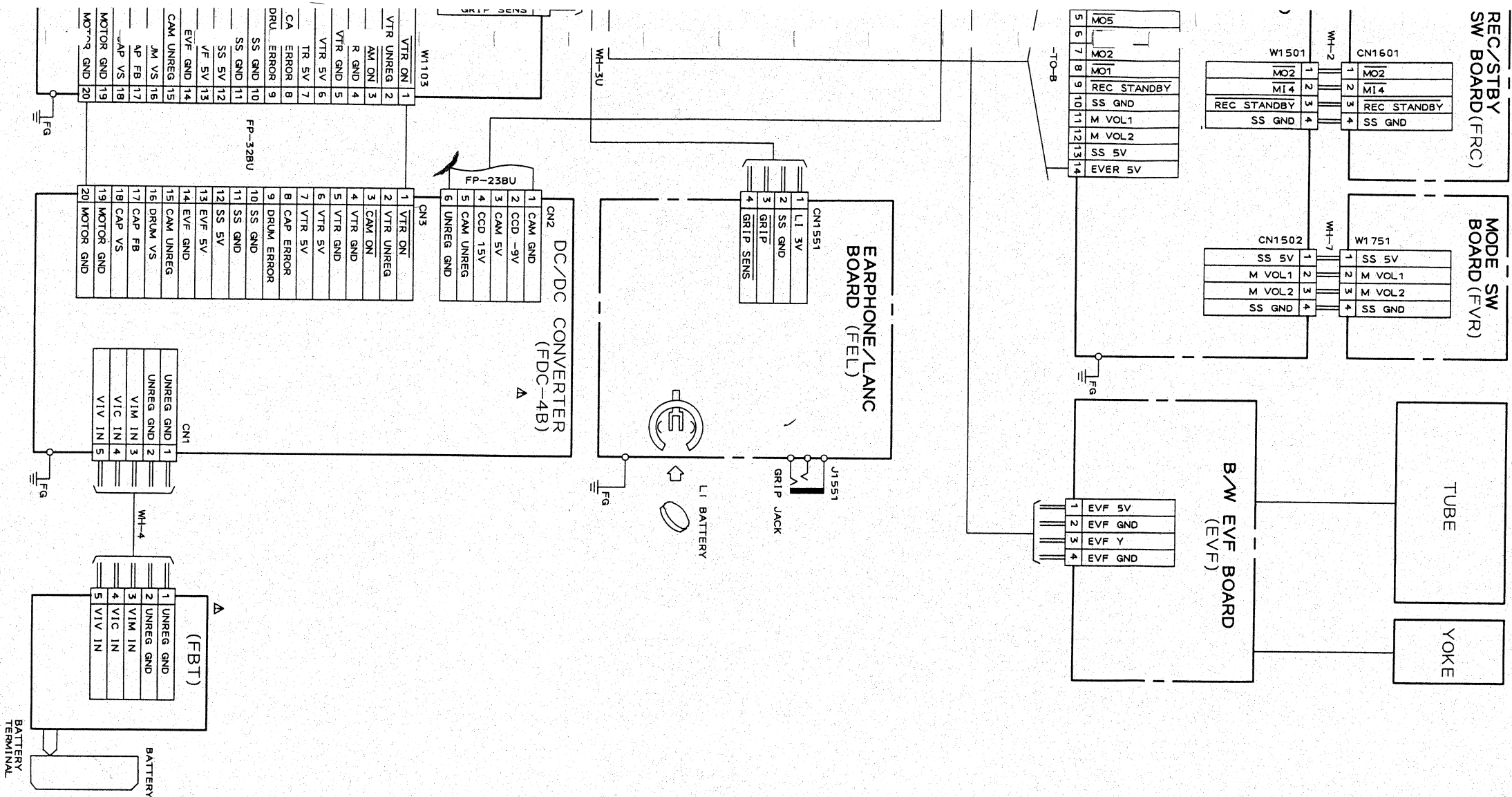
**(VIDEO, SERVO/SYSTEM CONTROL, MODE CONTROL,
AUDIO, VIEWFINDER block)**

- Voltages are dc between ground and measurement points.*
- Readings are taken with a color bar signal input.*
- Readings are taken with a digital multimeter (DC 10M Ω).*
- Voltage variations may be noted due to normal production tolerances.*

*: Indicated by the color red.







2 Schematic Diagrams

21

22

23

24

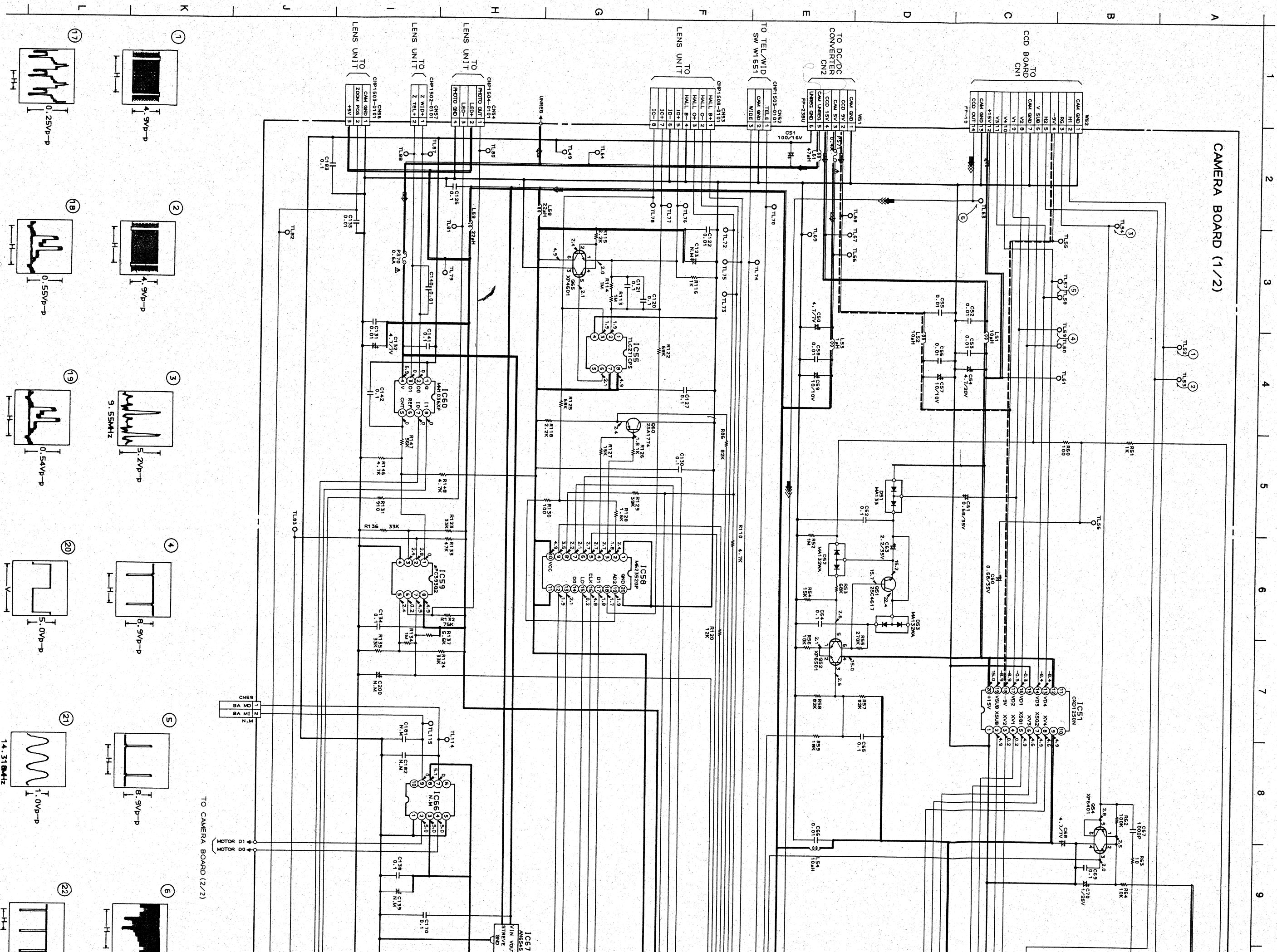
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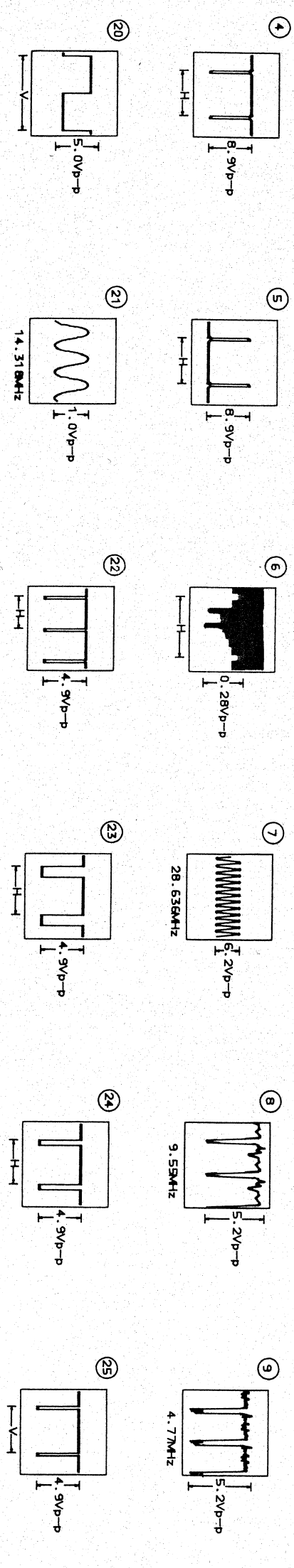
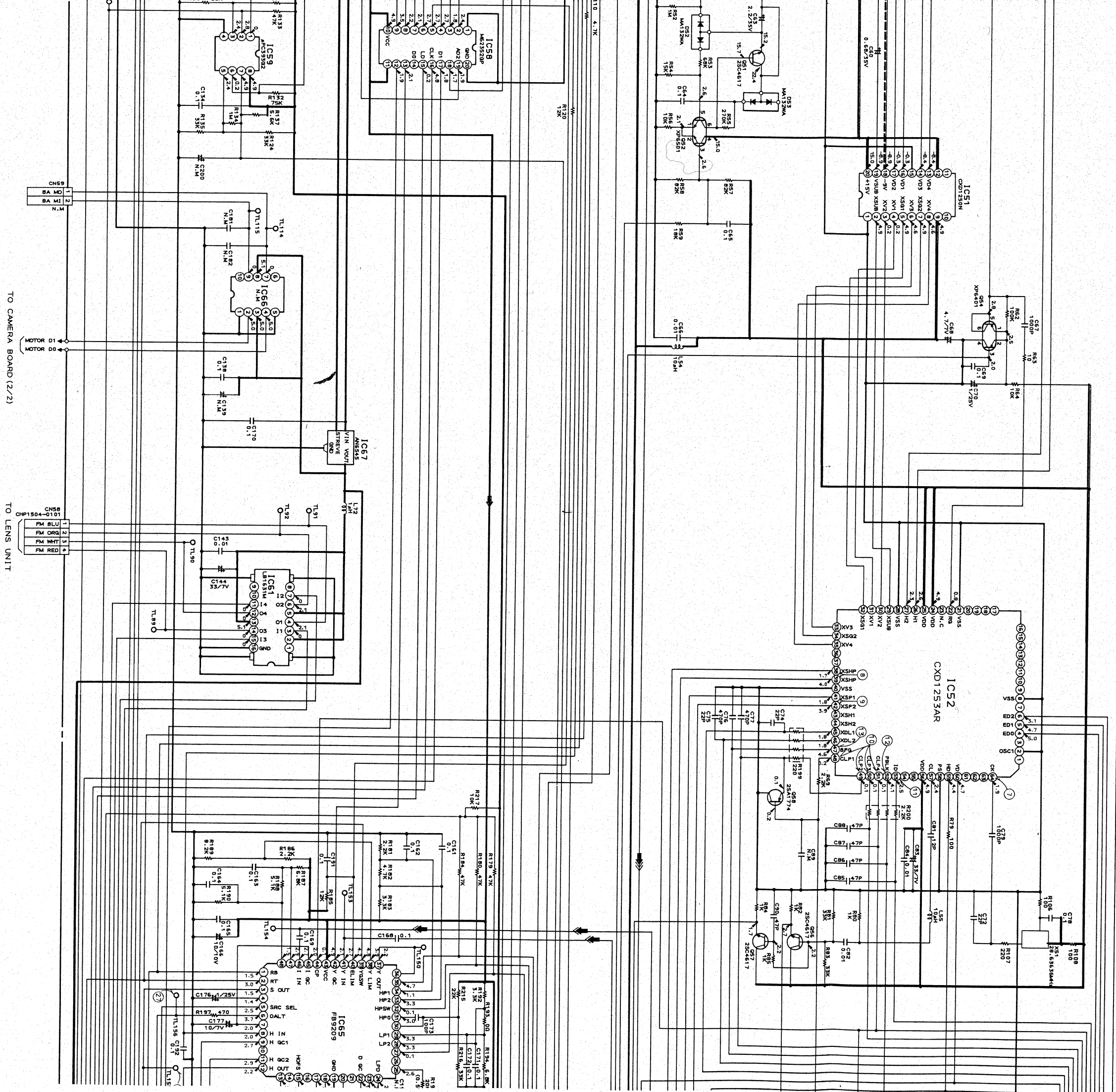
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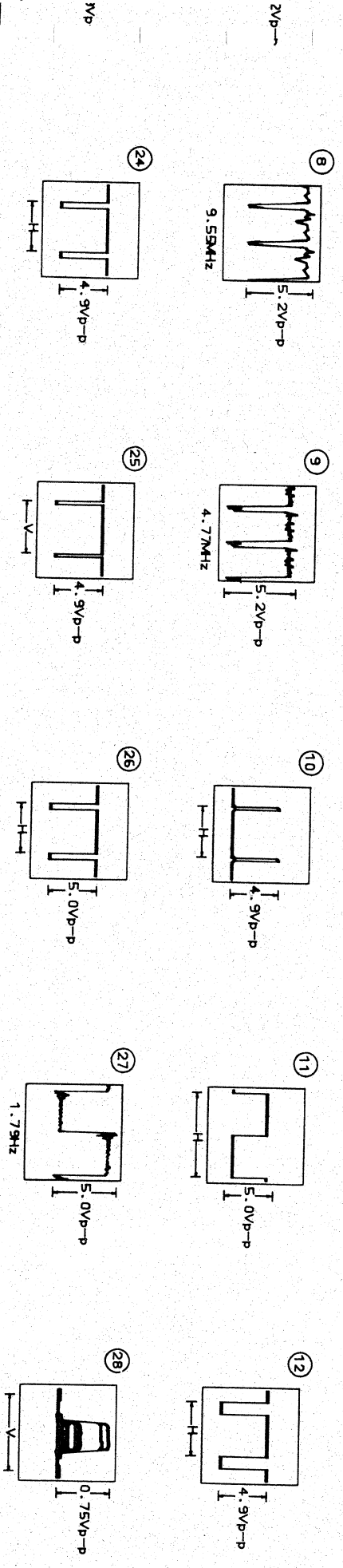
2 Schematic Diagrams

2-3. CAMERA SCHEMATIC DIAGRAM (FCA BOARD)

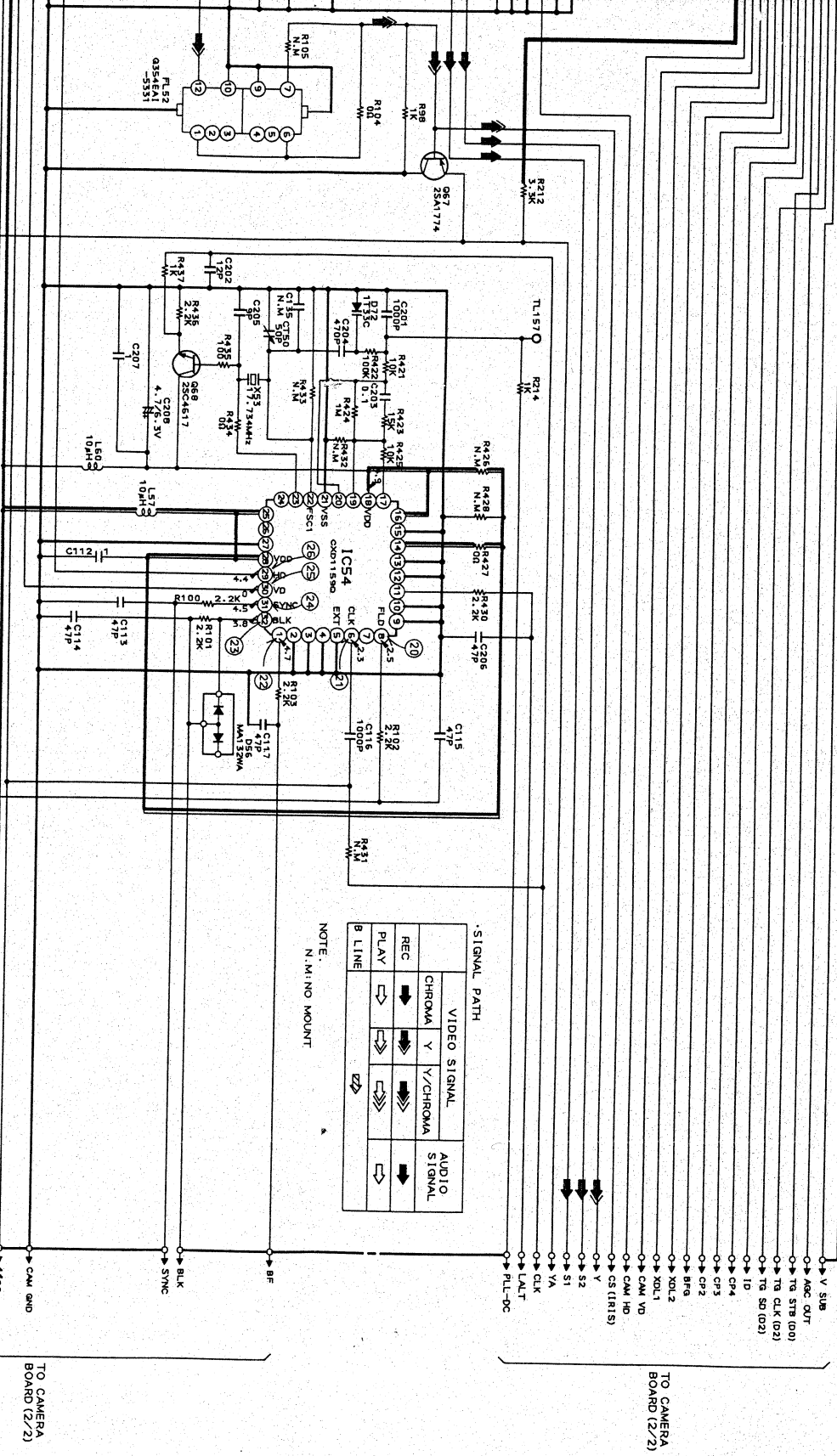
2-3-1. CAMERA SCHEMATIC DIAGRAM (1/2)







19 20 21 22 23 24 25 26



[FCA BOARD COMPONENT LOCATIONS]

For printed wiring boards.

FCA board is the printed wiring board which has four layers structure but inner two layer's patterns are omitted.

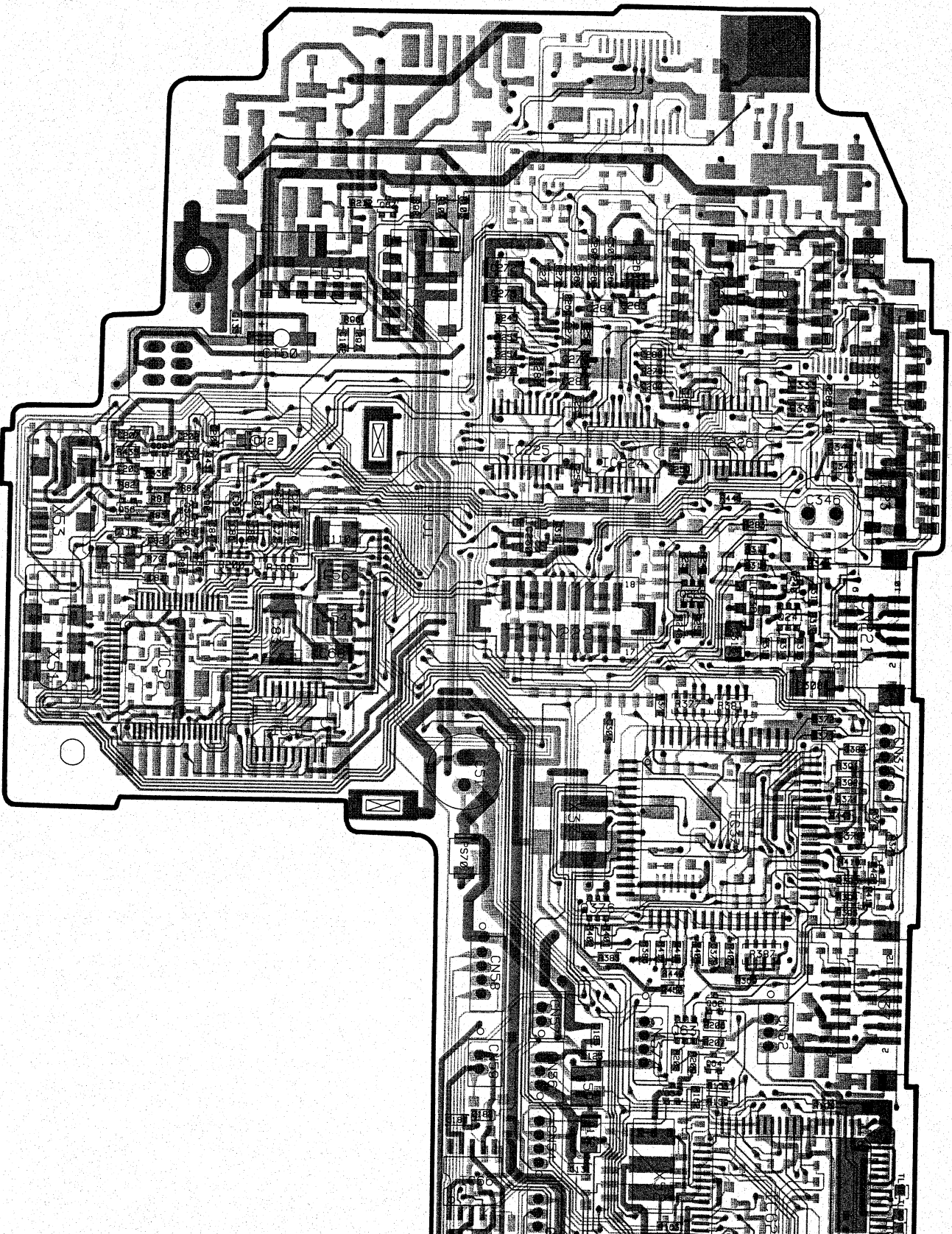
Caution:

Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.
(Conductor side)

Parts face side: Parts on the parts face side seen from the parts face are indicated.
(Component side)

Parts on the parts face side seen from the parts face are indicated.

FCA BOARD (COMPONENT SIDE)



8

9

10

11

12

13

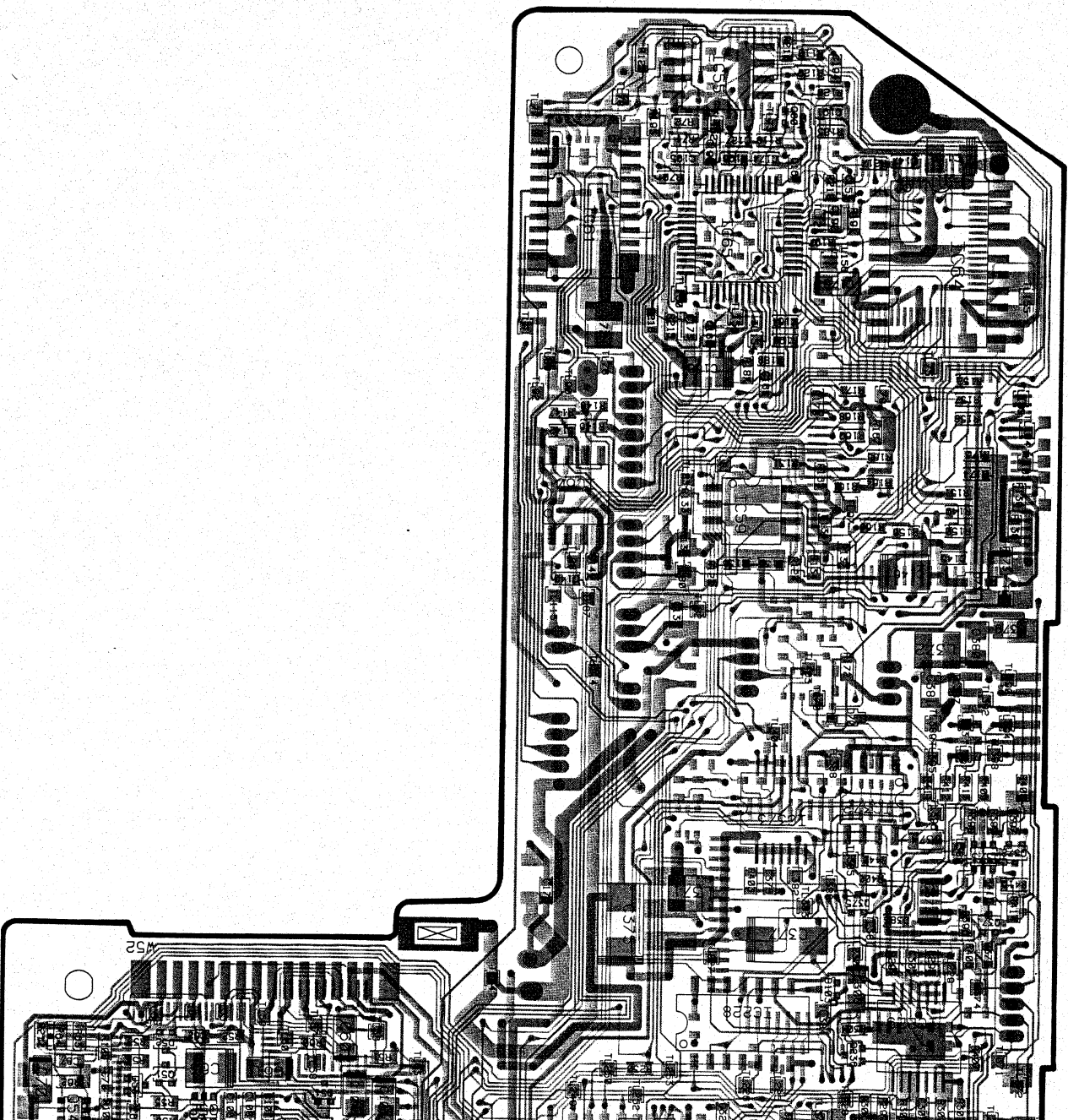
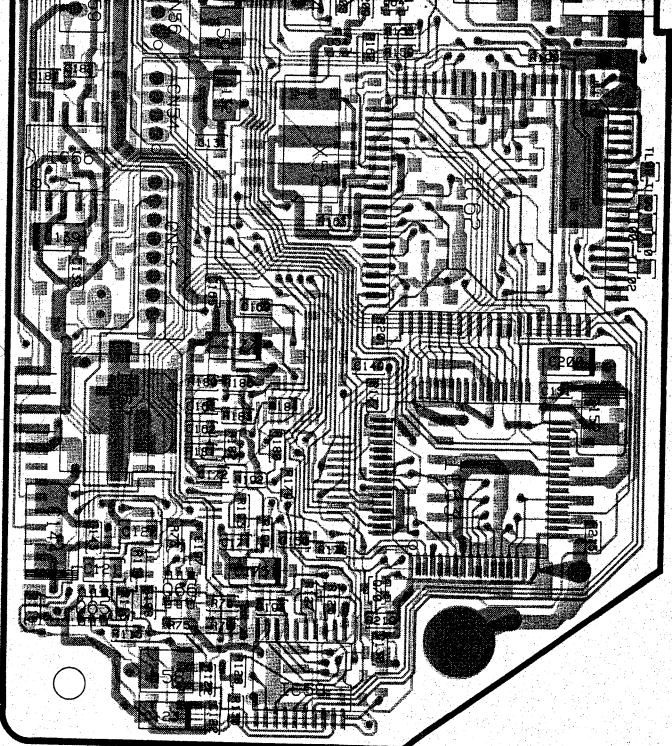
14

15

16

17

FCA BOARD (CONDUCTOR SIDE)



9

10

11

12

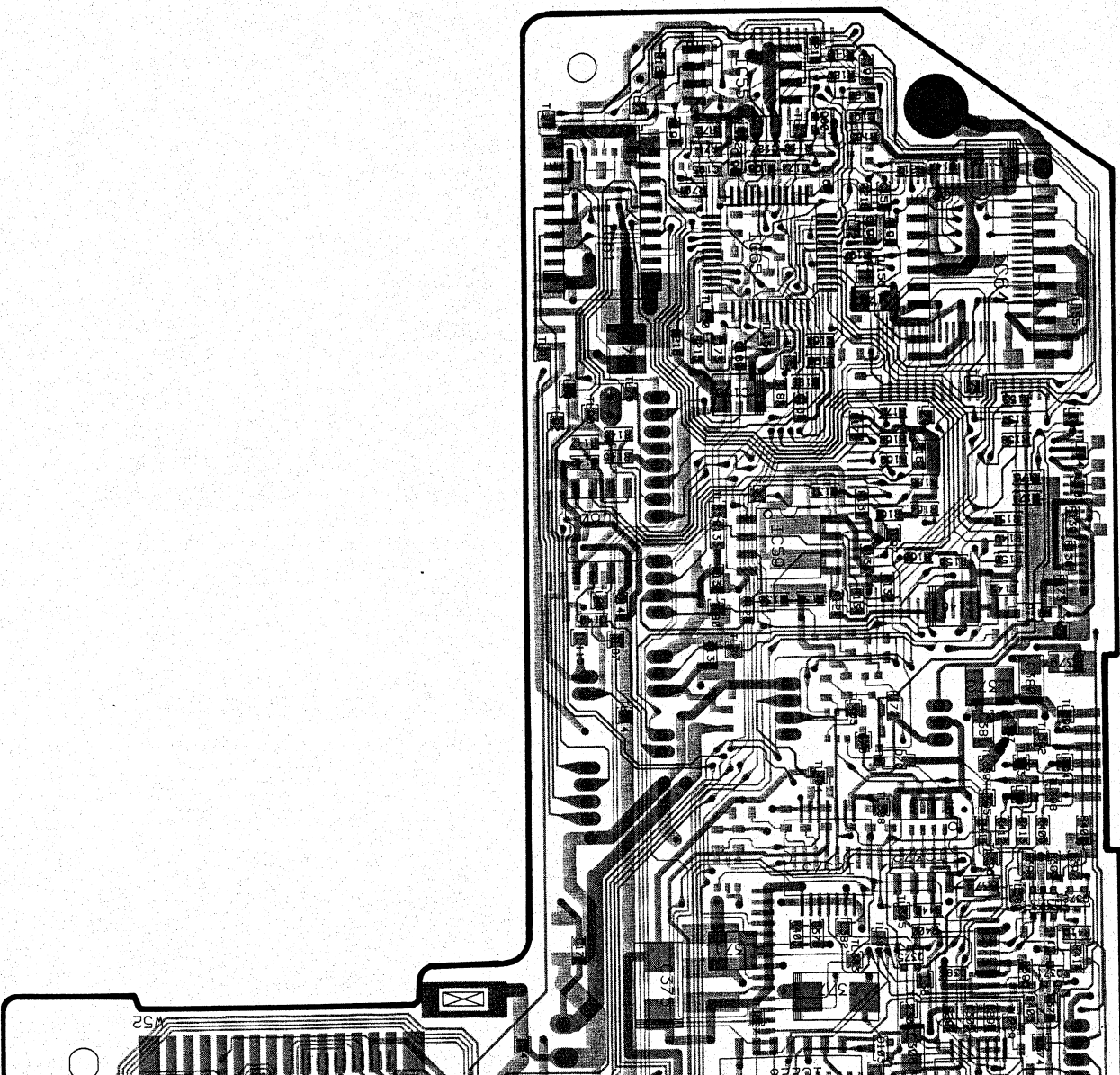
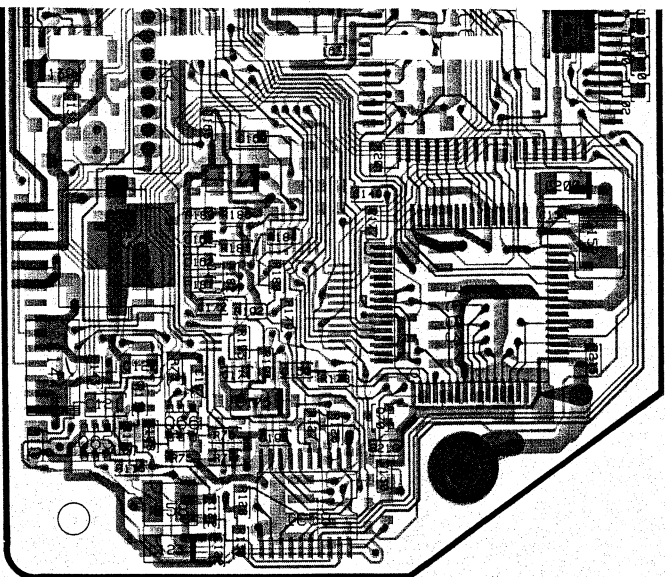
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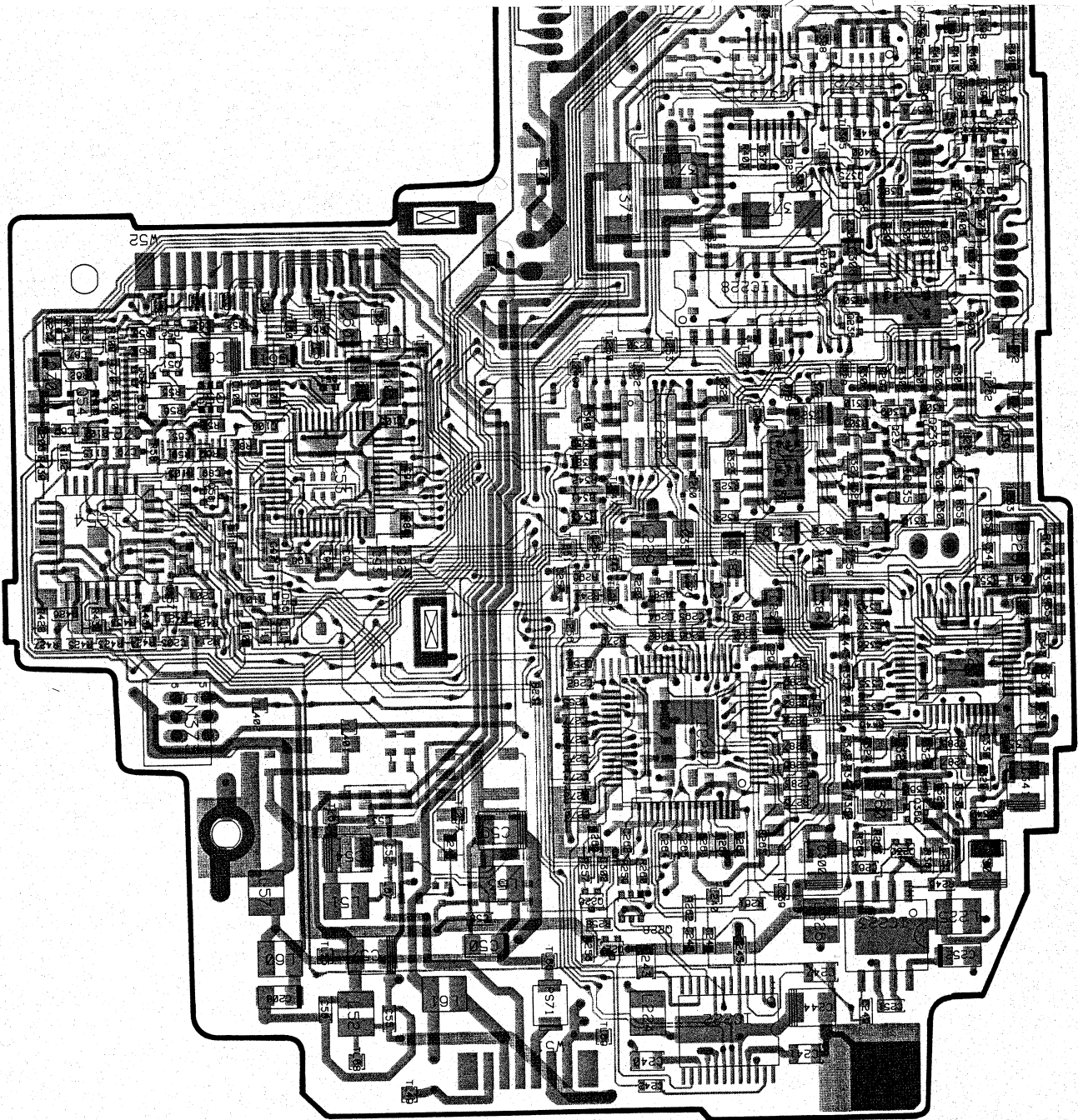
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15

16

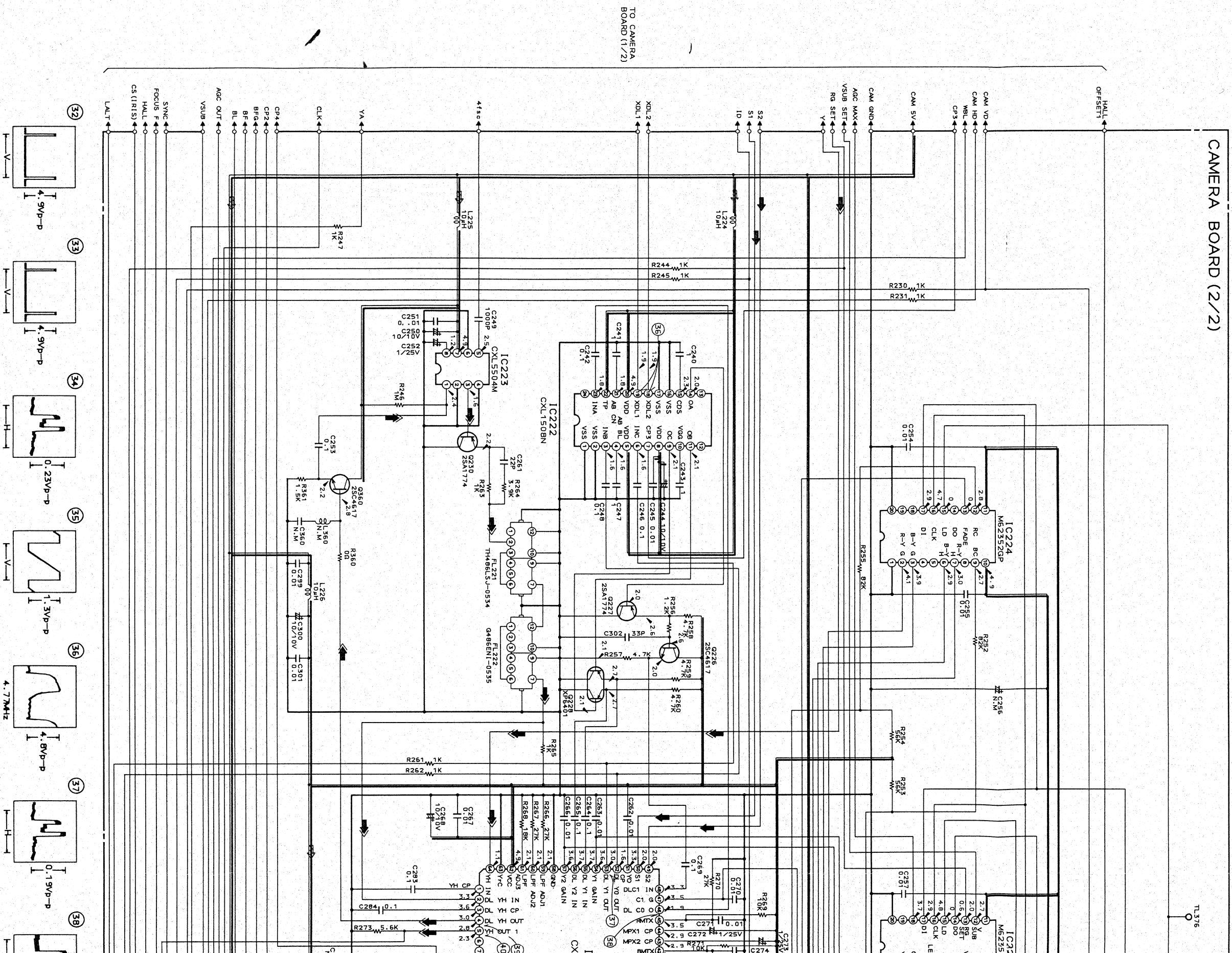
FCA BOARD (CONDUCTOR SIDE)

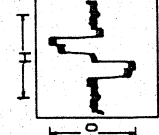
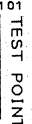




2 Schematic Diagrams

2-3-2. CAMERA SCHEMATIC DIAGRAM (2/2)





TO CAMERA BOARD (1/2)

TEST POINT

- SS GND
- EVRSCK
- EVRSO
- LCDSTB
- LCDAO

TO CAMERA BOARD (1/2)

SYSTEM RESET

SO

UNREG

TL377

TL373

TL372

TL378

TL379

TL380

TL381

TL384

TL385

TL386

TL387

TL388

TL389

TL390

TL391

TL392

TL393

TL394

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TL469

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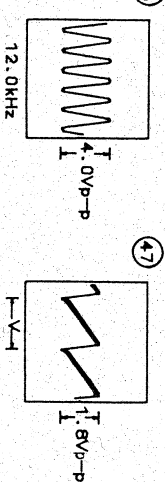
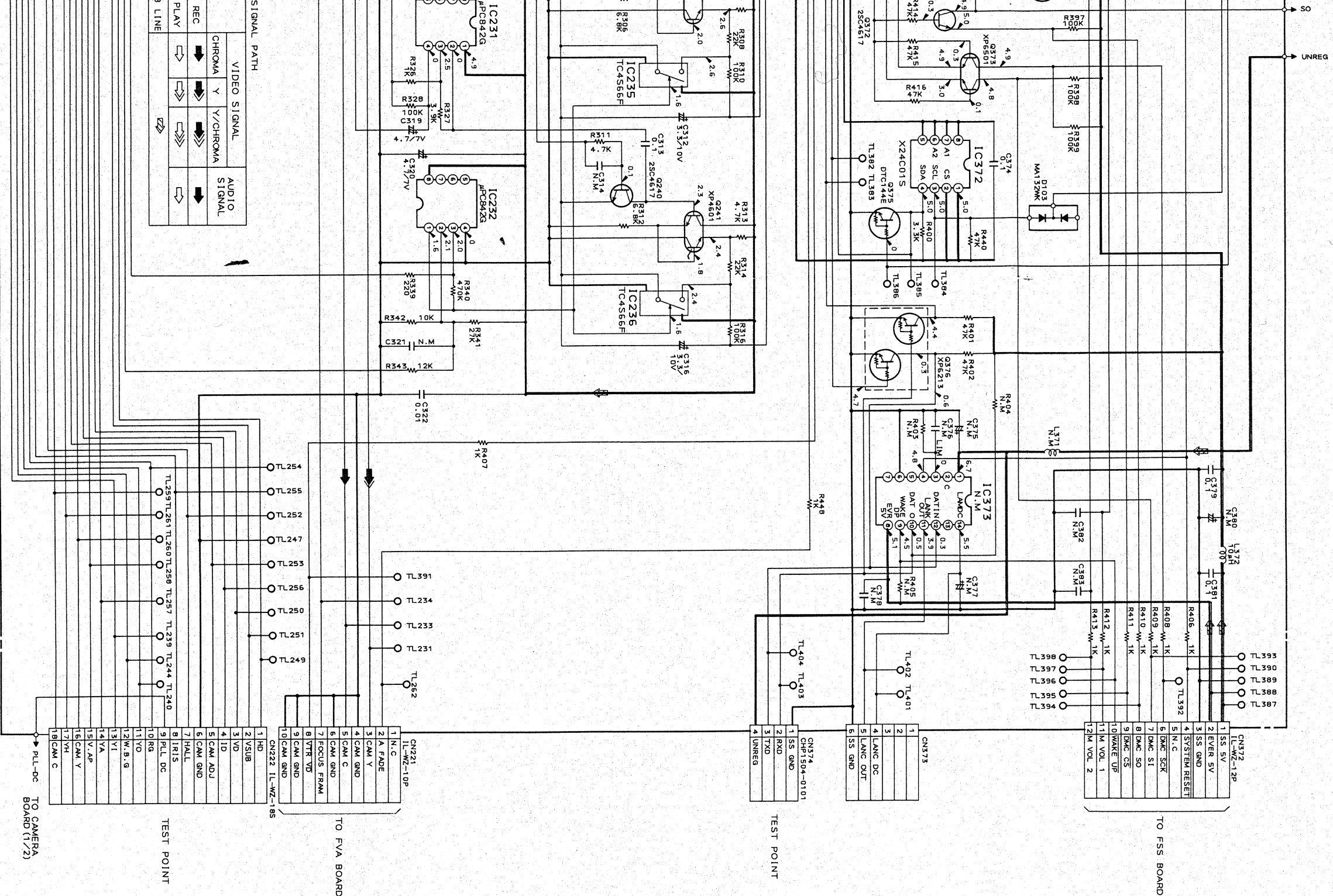
TL698

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TL700

TL701

BOARD (1/2)

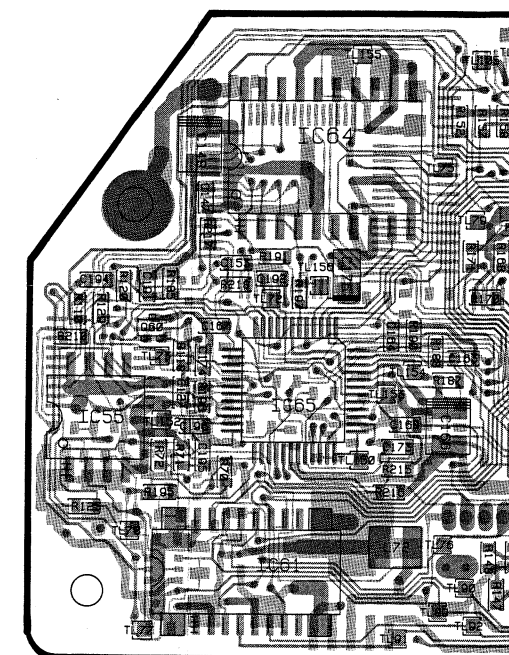
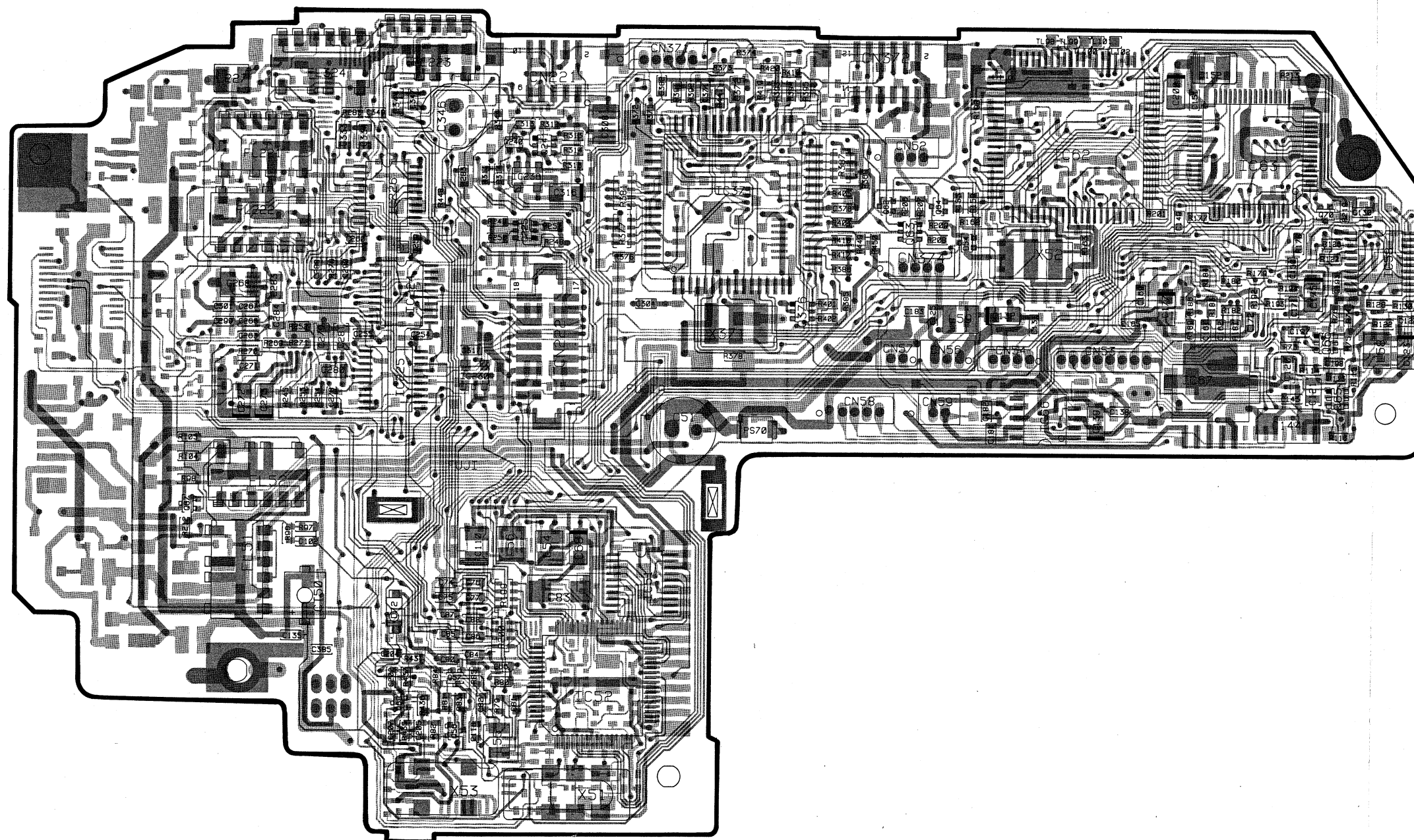


FCA board is the printed wiring board which has four layers structure but inner two layer's patterns are omitted.

Pattern face side: Parts on the pattern face side seen
(Conductor side) from the pattern face are indicated.

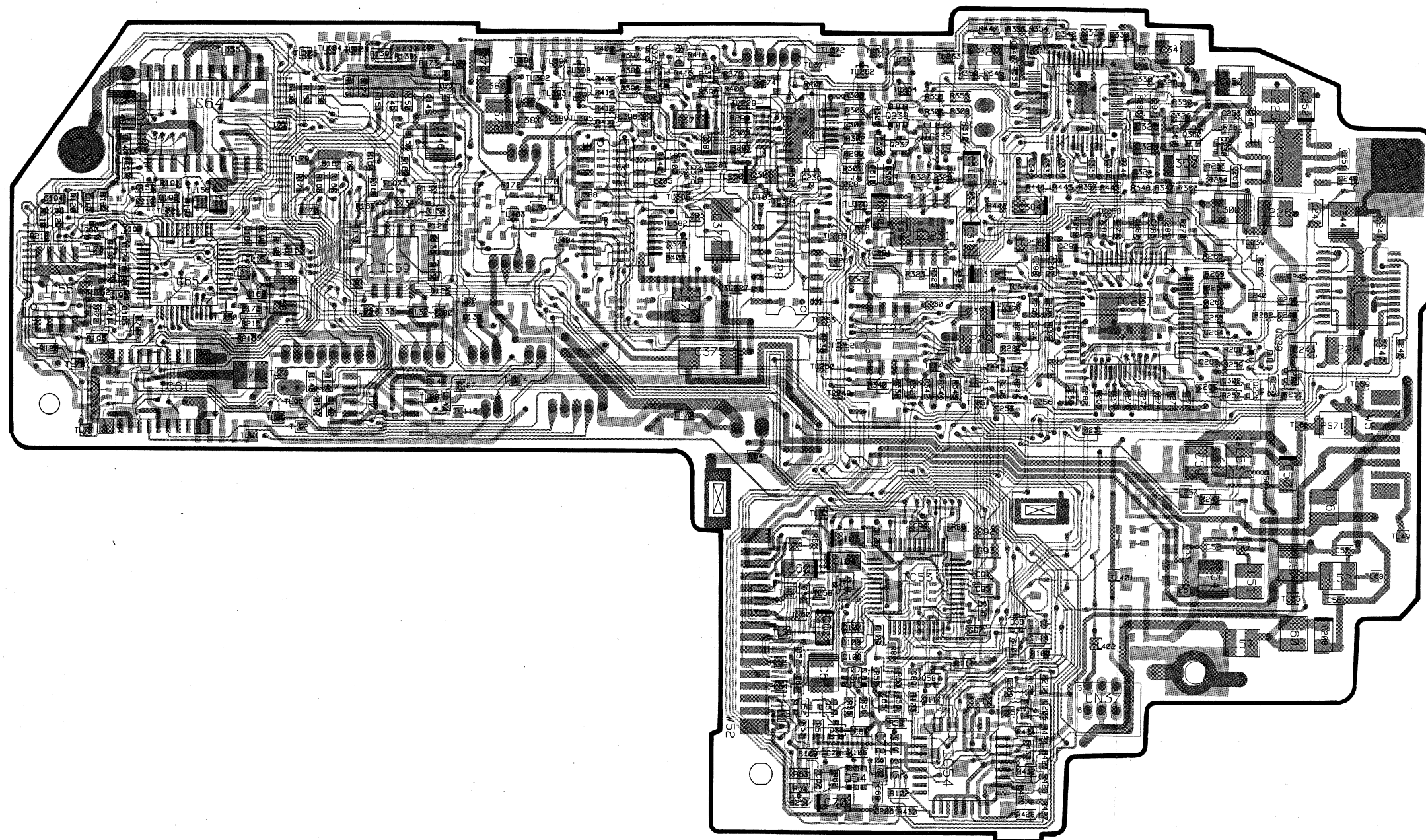
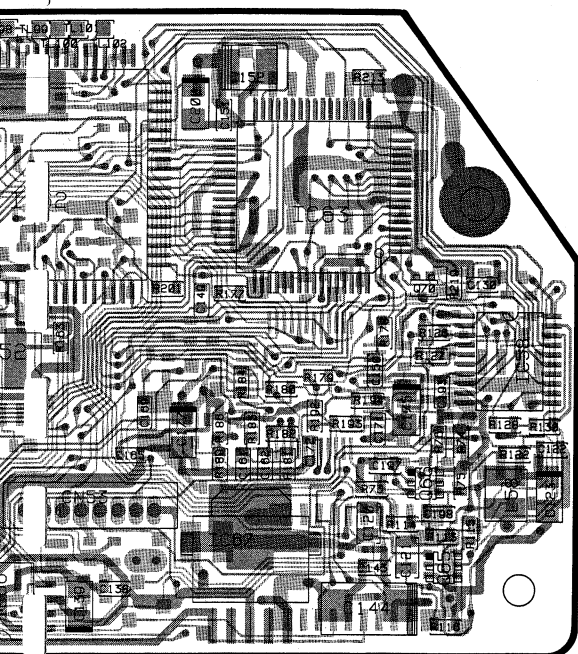
Parts face side: Parts on the parts face side seen
(Component side) from the parts face are indicated.

FCA BOARD (CONDUCTOR SIDE)



9 10 11 12 13 14 15 16 17 18 19 20 21

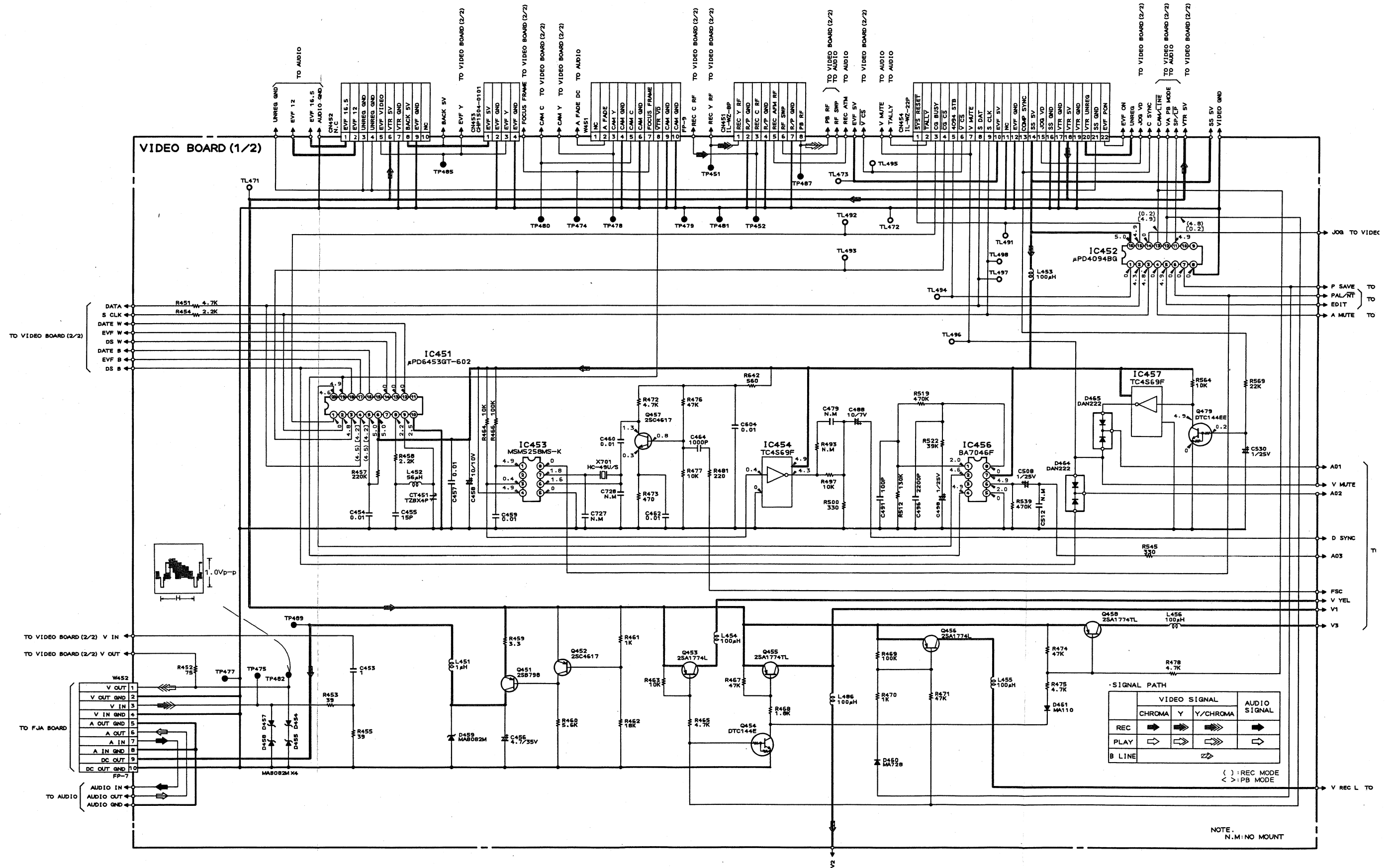
FCA BOARD (CONDUCTOR SIDE)

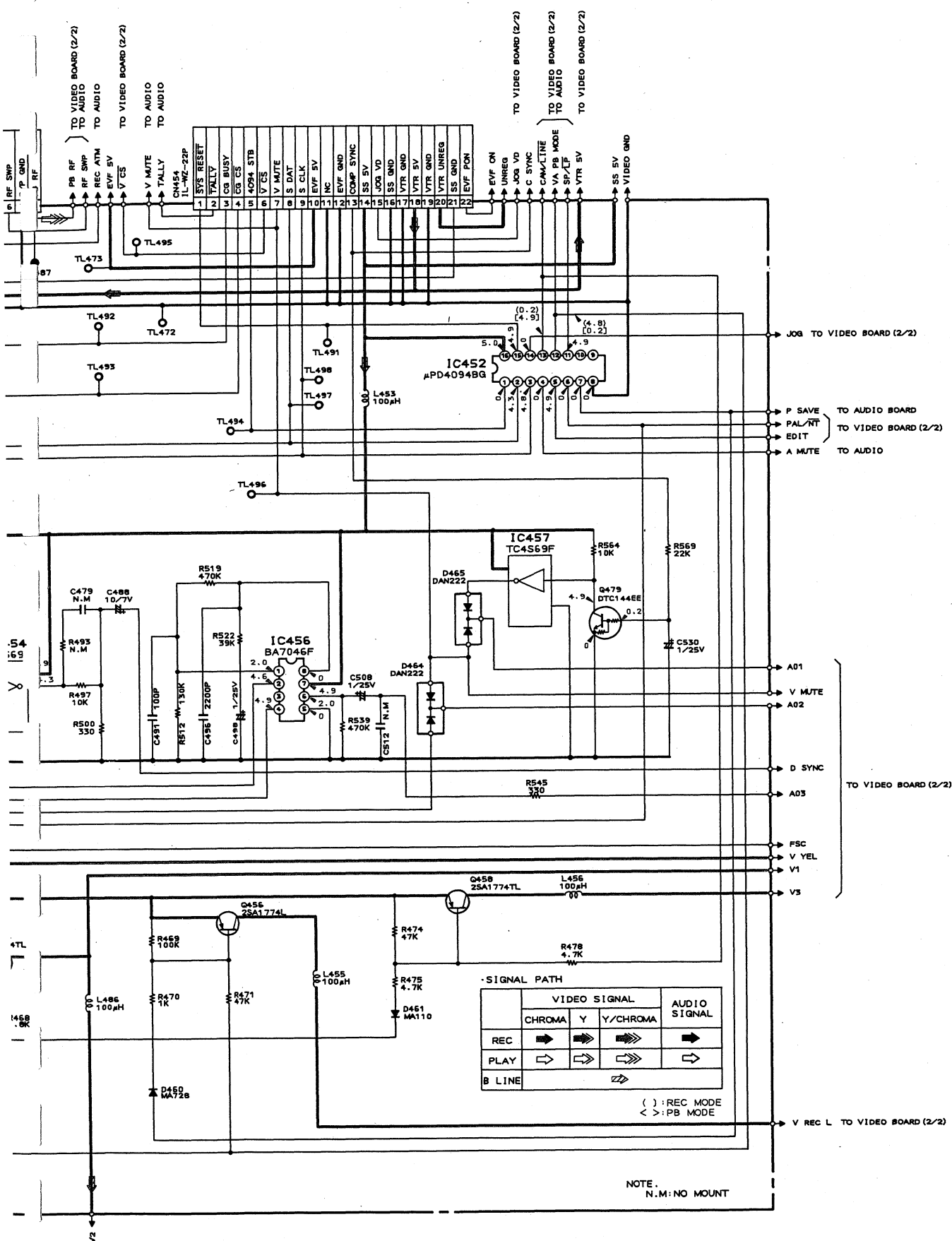


2 Schematic Diagrams

2-4. VIDEO SCHEMATIC DIAGRAM (FVA BOARD)

2-4-1. VIDEO SCHEMATIC DIAGRAM (1/2)





[FVA BOARD COMPONENT LOCATIONS]

For printed wiring boards.

FVA board is the printed wiring board which has four layers structure but inner two layer's patterns are omitted.

Caution:

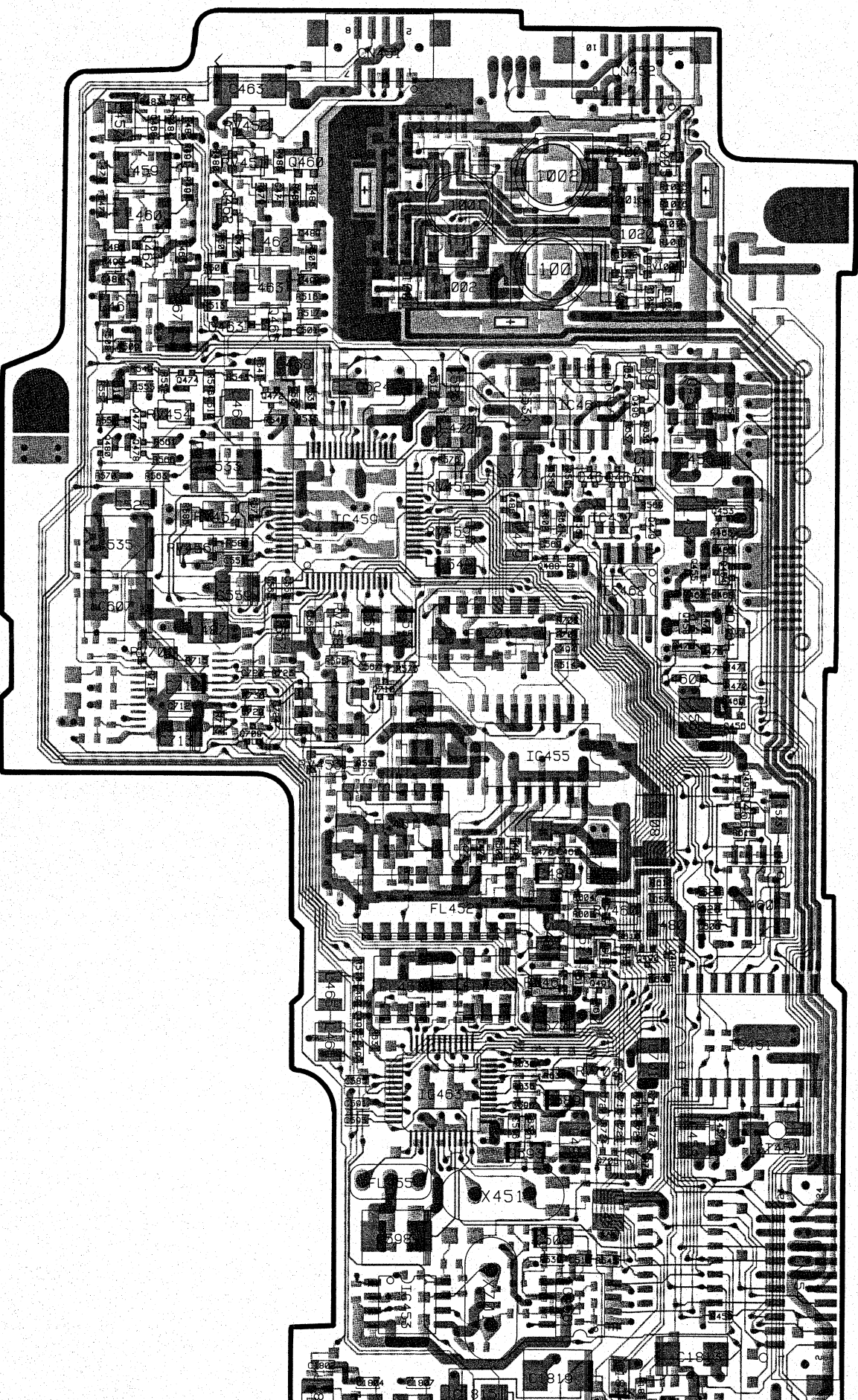
Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.
(Conductor side)

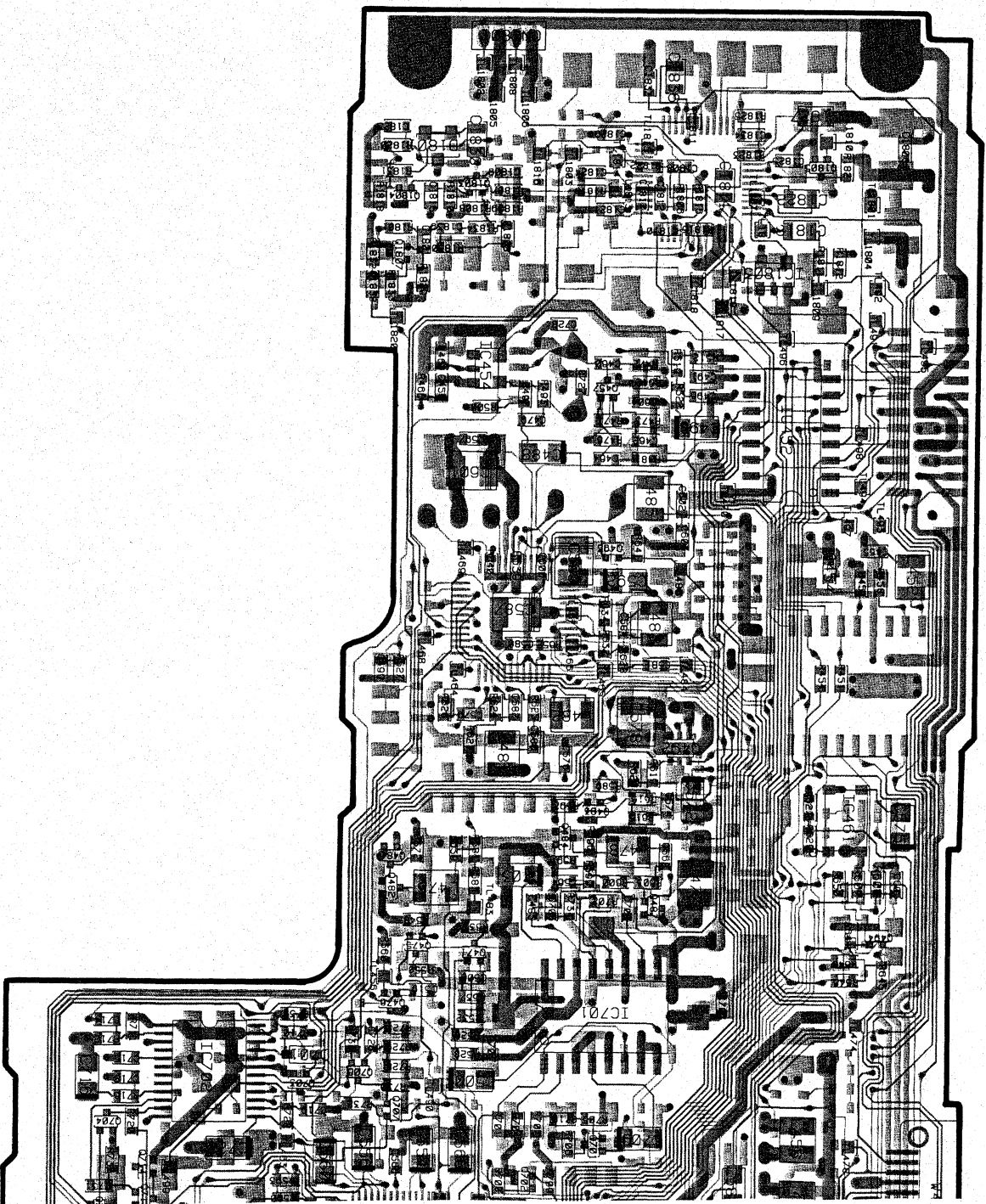
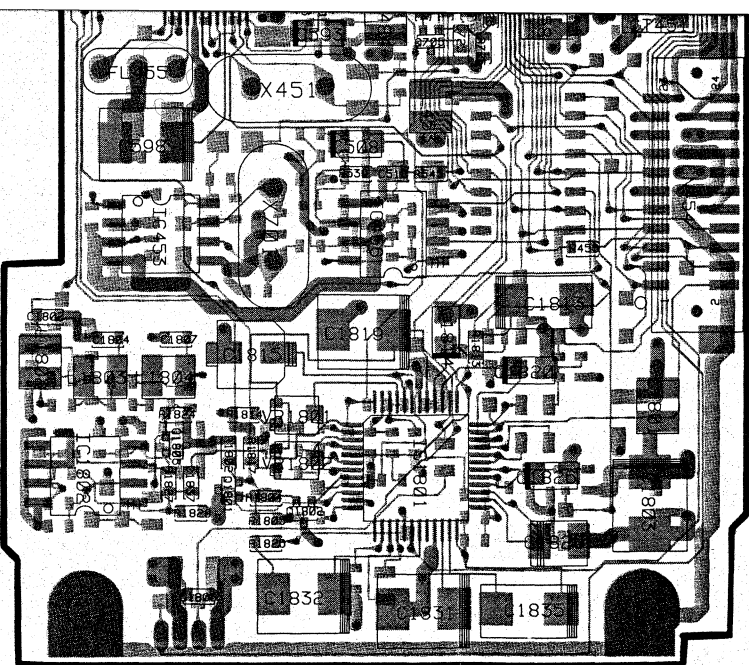
Parts face side: Parts on the parts face side seen from the parts face are indicated.
(Component side)

(Component side)

Parts on the parts face side seen from the parts face are indicated.

FVA BOARD (CONDUCTOR SIDE)

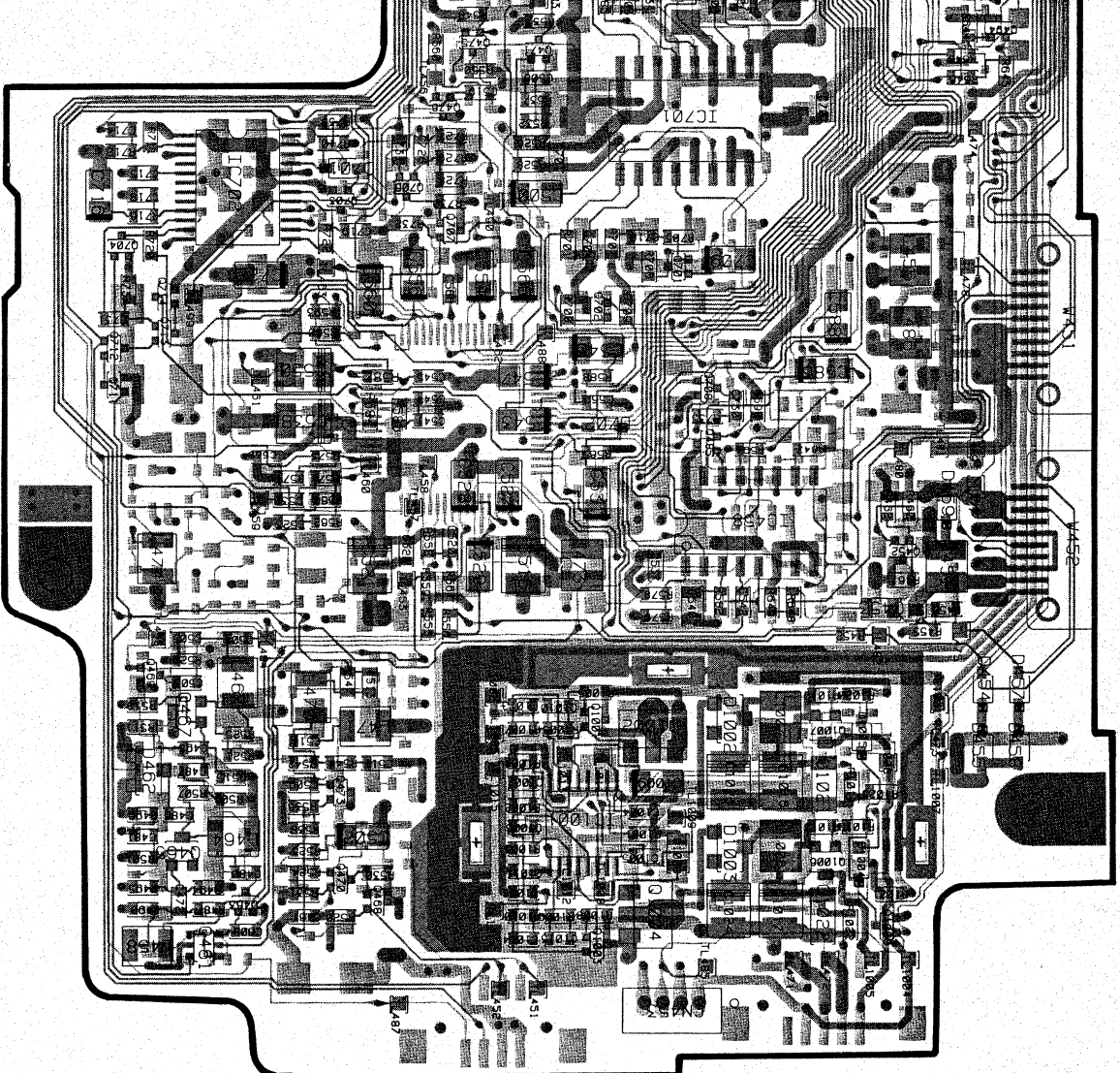




FVA BOARD (COMPONENT SIDE)

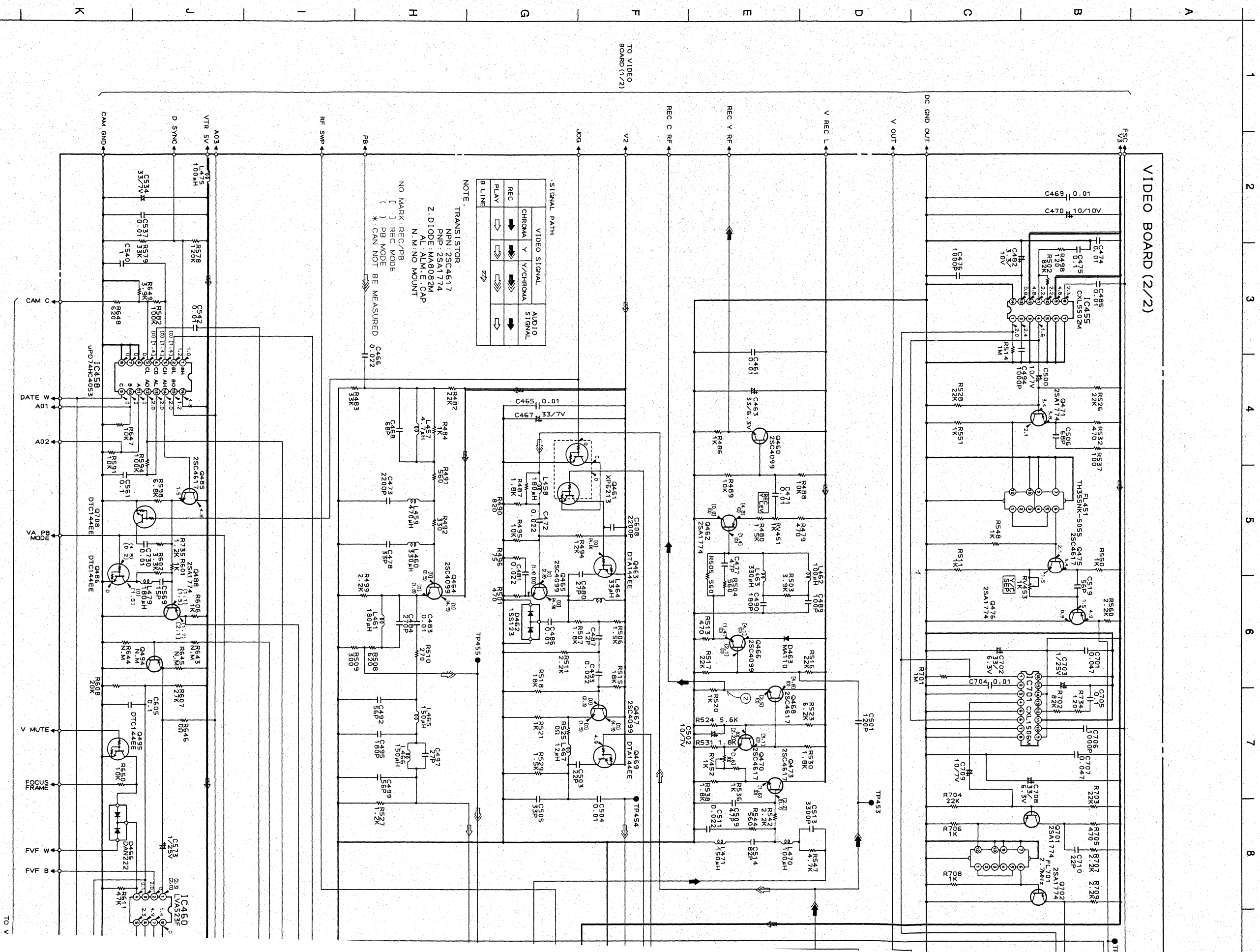
2 Schematic Diagrams

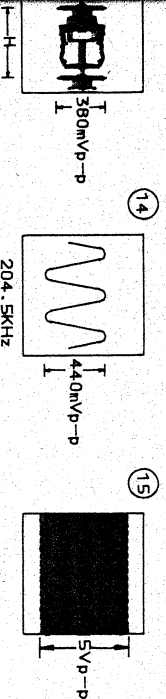
A vertical number line with tick marks and labels 17, 18, 19, 20, 21, 22, and 23.



2 Schematic Diagrams

2-4-2. VIDEO SCHEMATIC DIAGRAM (2/2)





[FVA BOARD COMPONENT LOCATIONS]

For printed wiring boards.

FVA board is the printed wiring board which has four layers structure but inner two layer's patterns are omitted.

Caution:

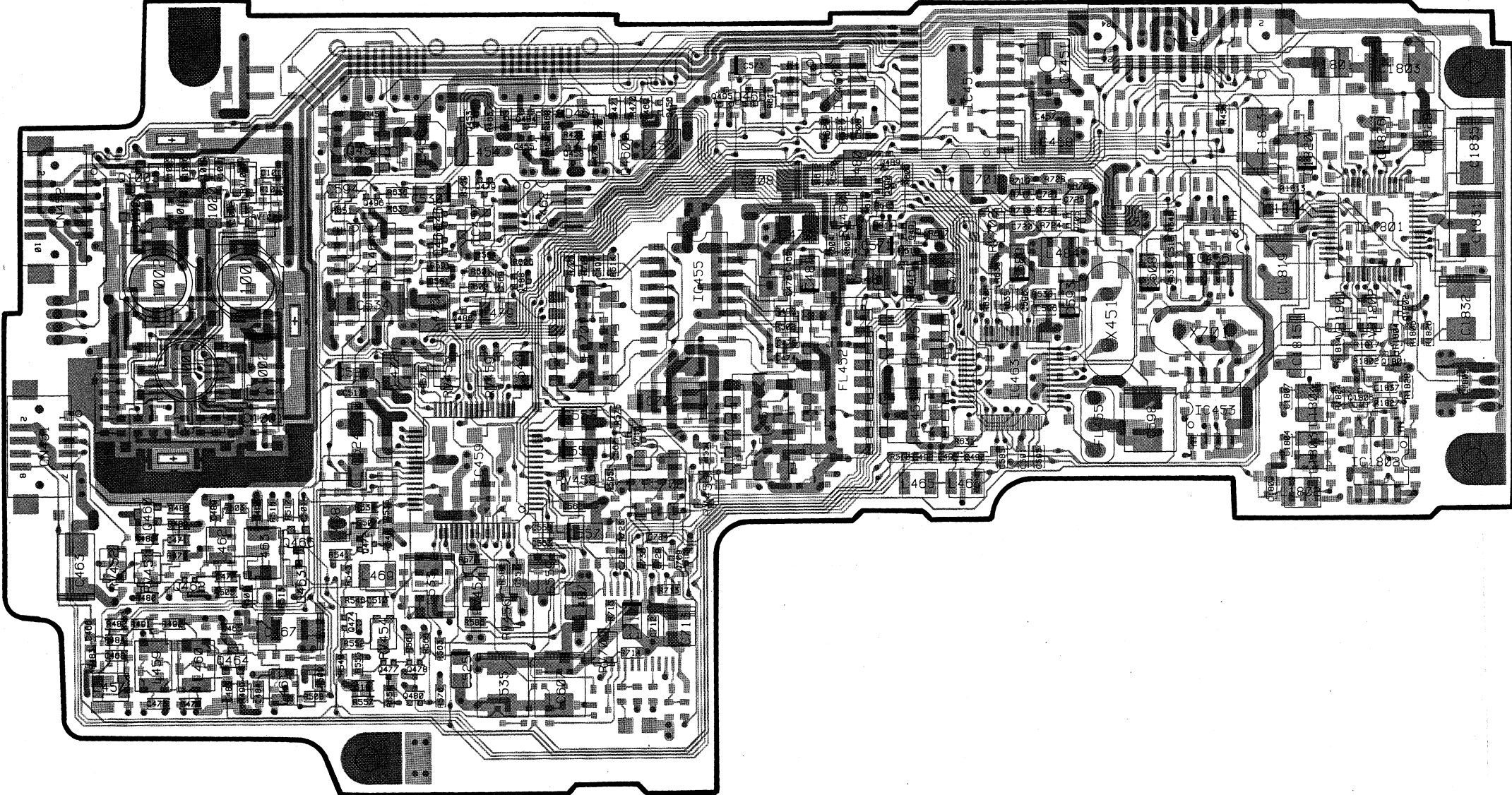
Pattern face side:

Parts on the pattern face side seen from the pattern face are indicated.

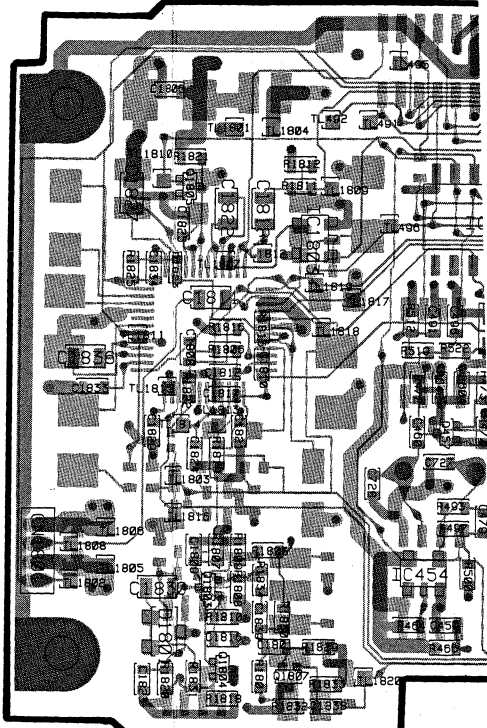
Parts face side:
(Component side)

Parts on the parts face side seen from the parts face are indicated.

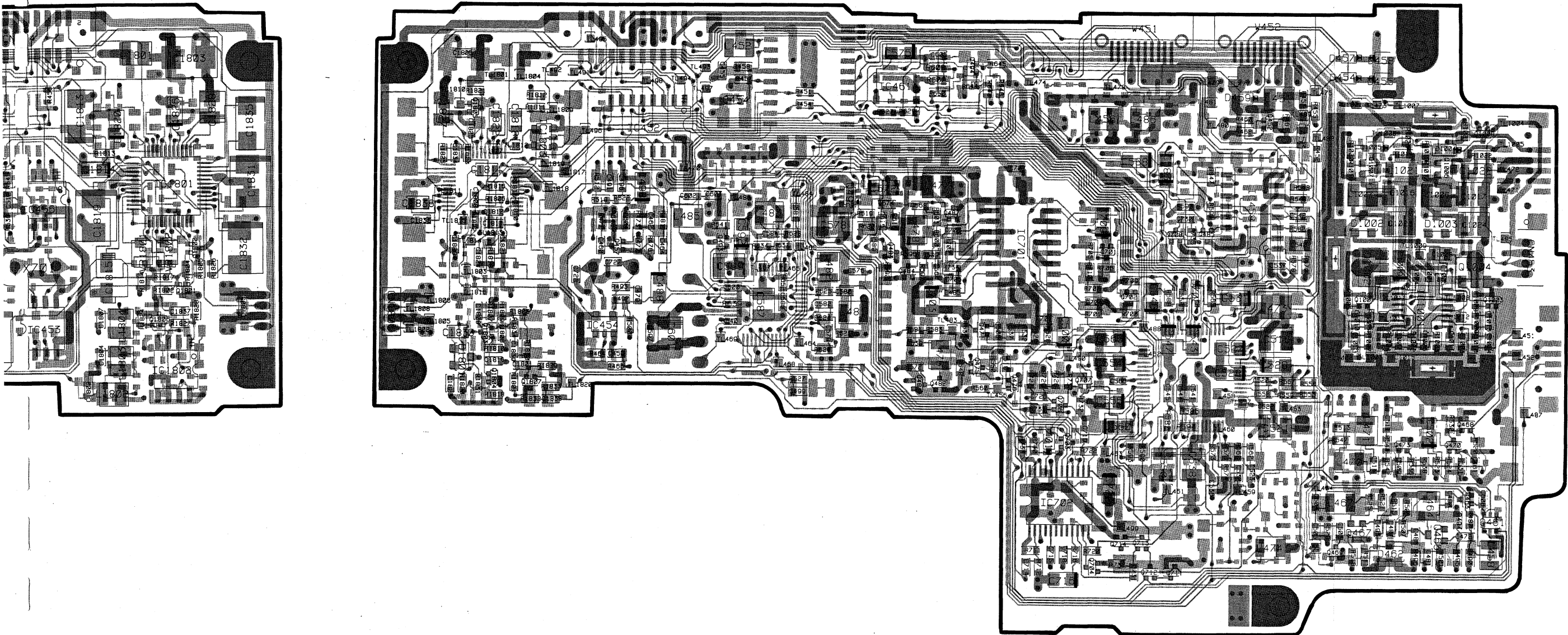
FVA BOARD (CONDUCTOR SIDE)



FVA BOARD (COMPONENT SIDE)

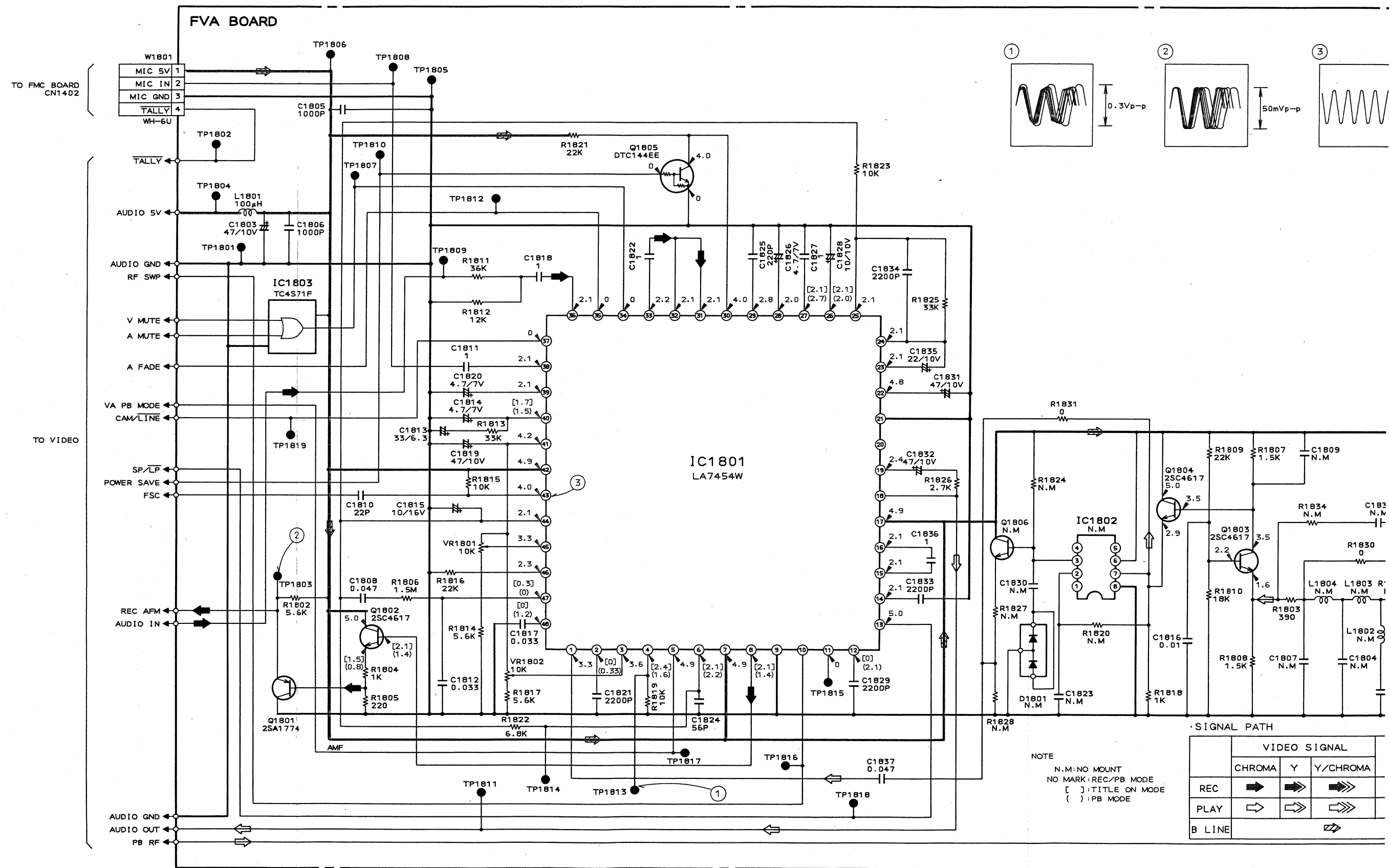


FVA BOARD (COMPONENT SIDE)

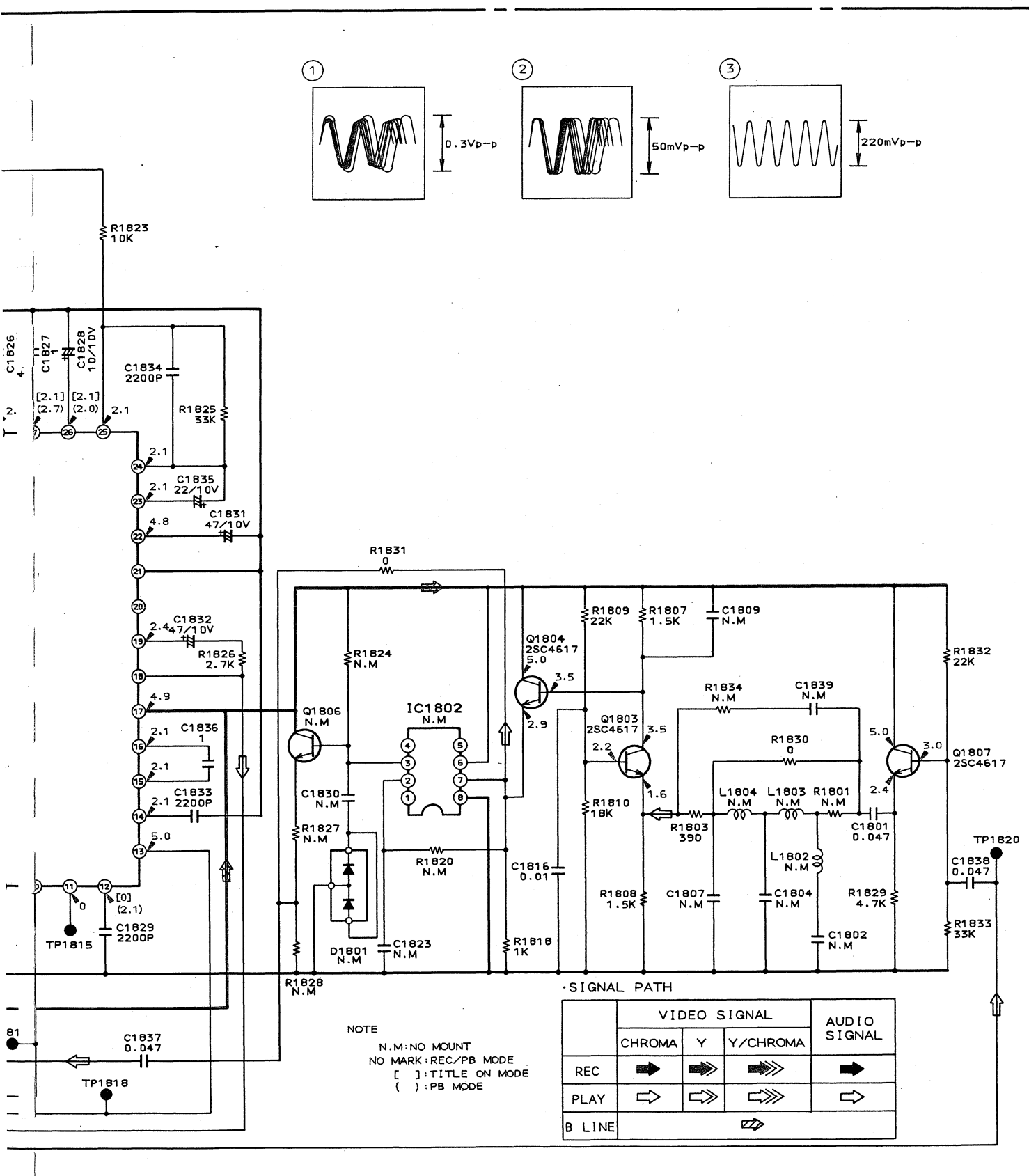


2 Schematic Diagrams

2-5. AUDIO SCHEMATIC DIAGRAM (FVA BOARD)



9 10 11 12 13 14 15 16 17 18 19 20 21



[FVA BOARD COMPONENT LOCATIONS]

For printed wiring boards.

FVA board is the printed wiring board which has four layers structure but inner two layer's patterns are omitted.

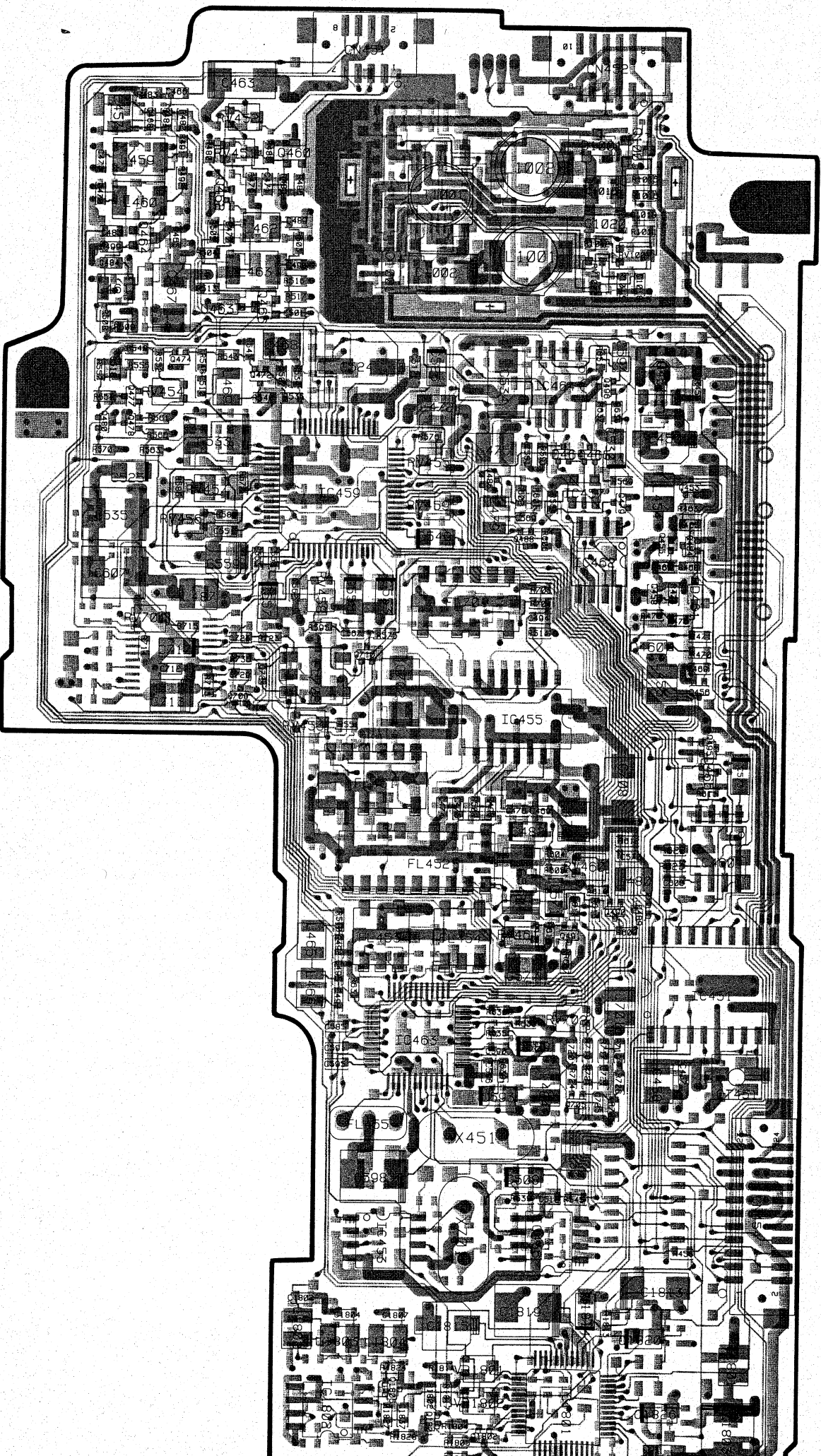
Caution:

Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.

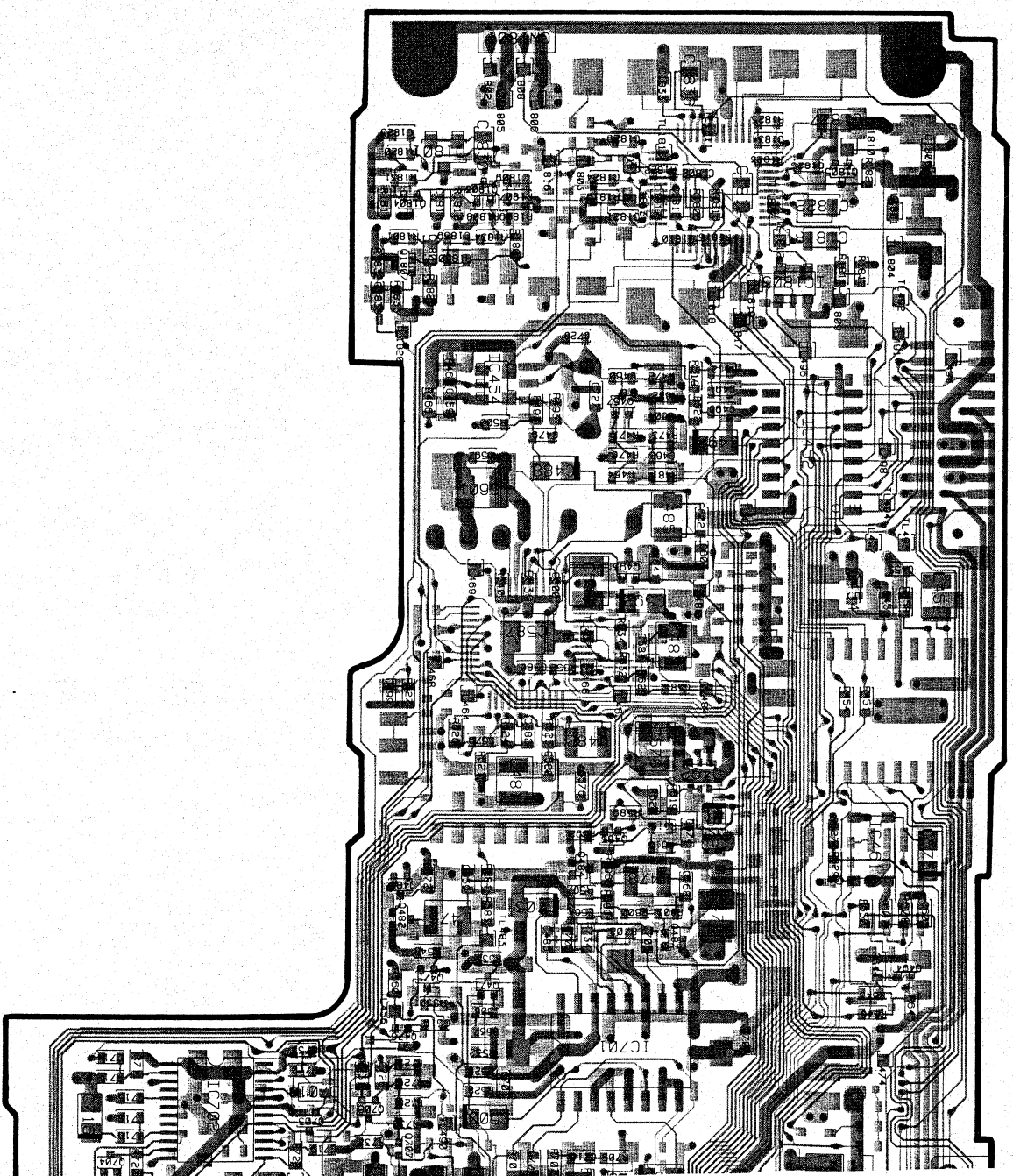
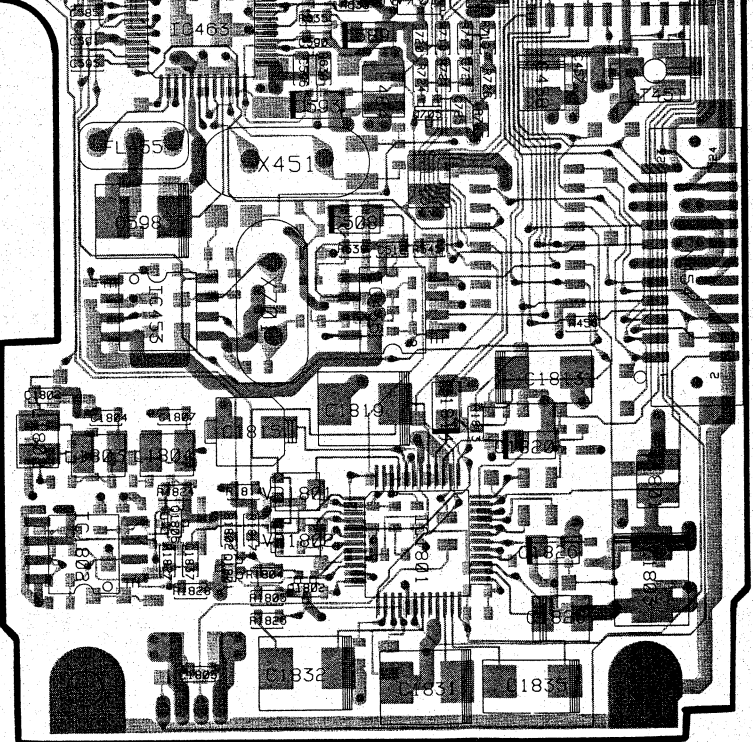
Parts face side: Parts on the parts face side seen from the parts face are indicated.
(Component side)

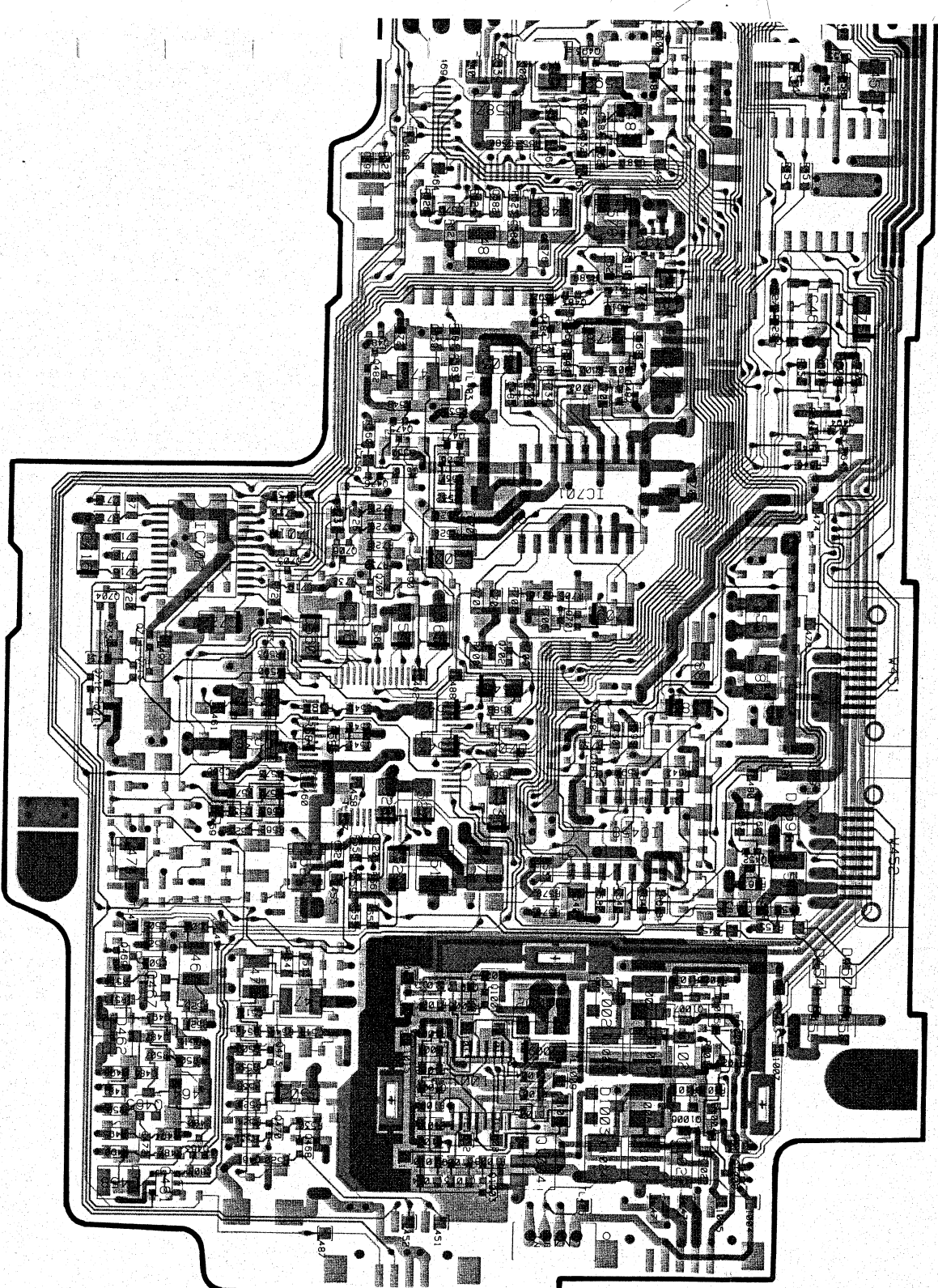
Parts on the pattern face side seen from the pattern face are indicated. Parts on the parts face side seen from the parts face are indicated.

FVA BOARD (CONDUCTOR SIDE)



FVA BOARD (COMPONENT SIDE)





2 Schematic Diagrams

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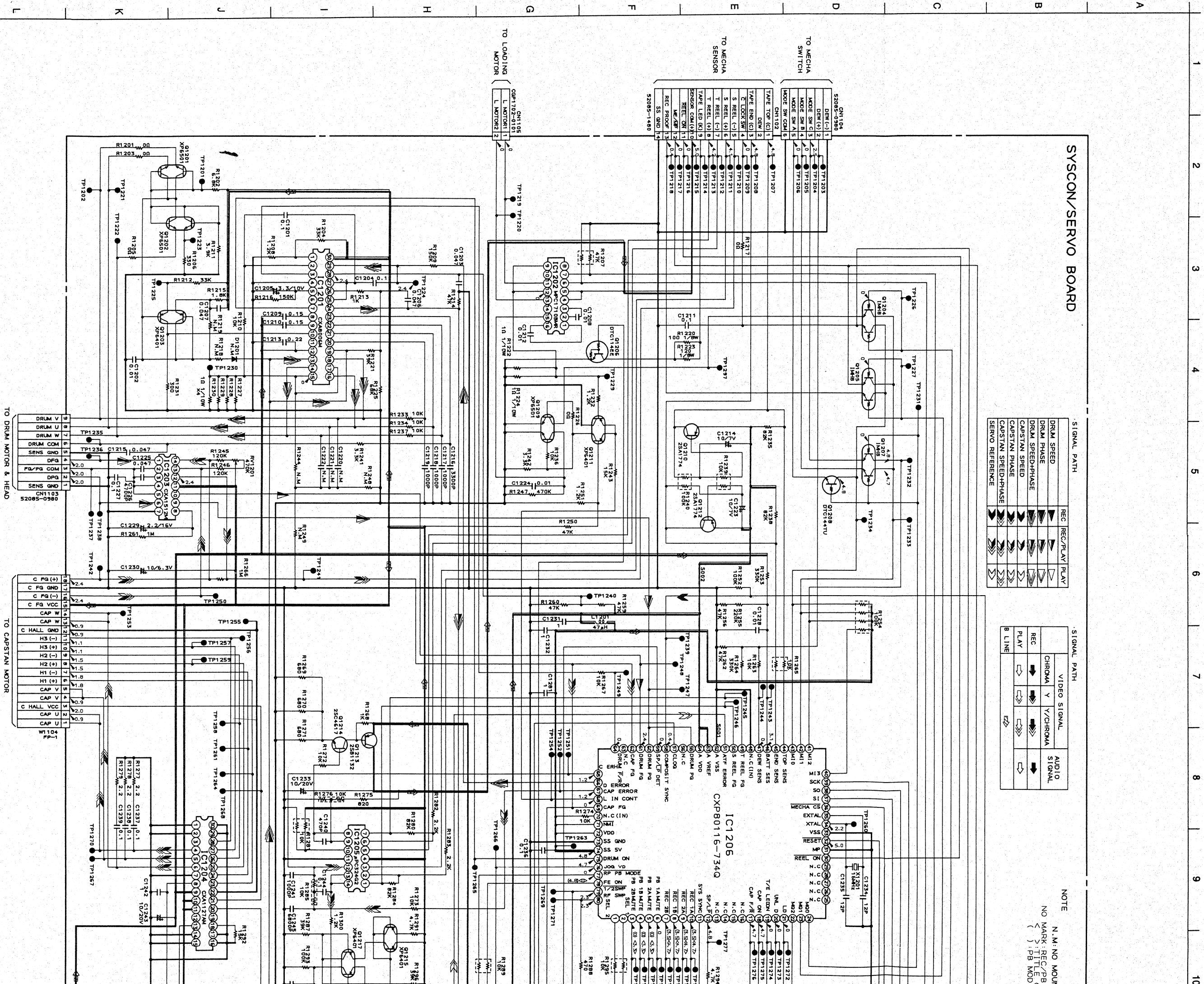
26

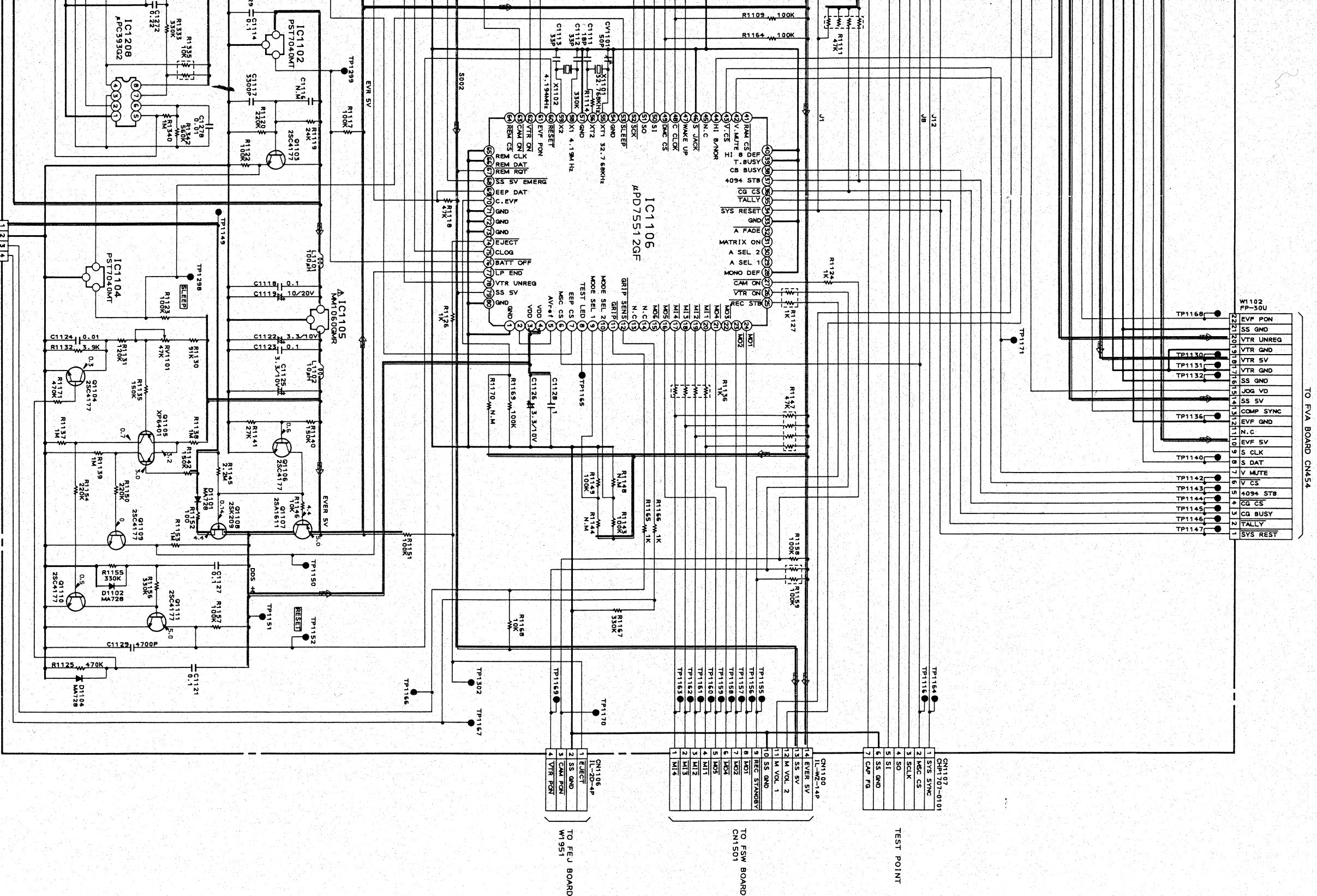
27

25

2 Schematic Diagrams

2-6. SYSCON/SERVO SCHEMATIC DIAGRAM (FSS BOARD)



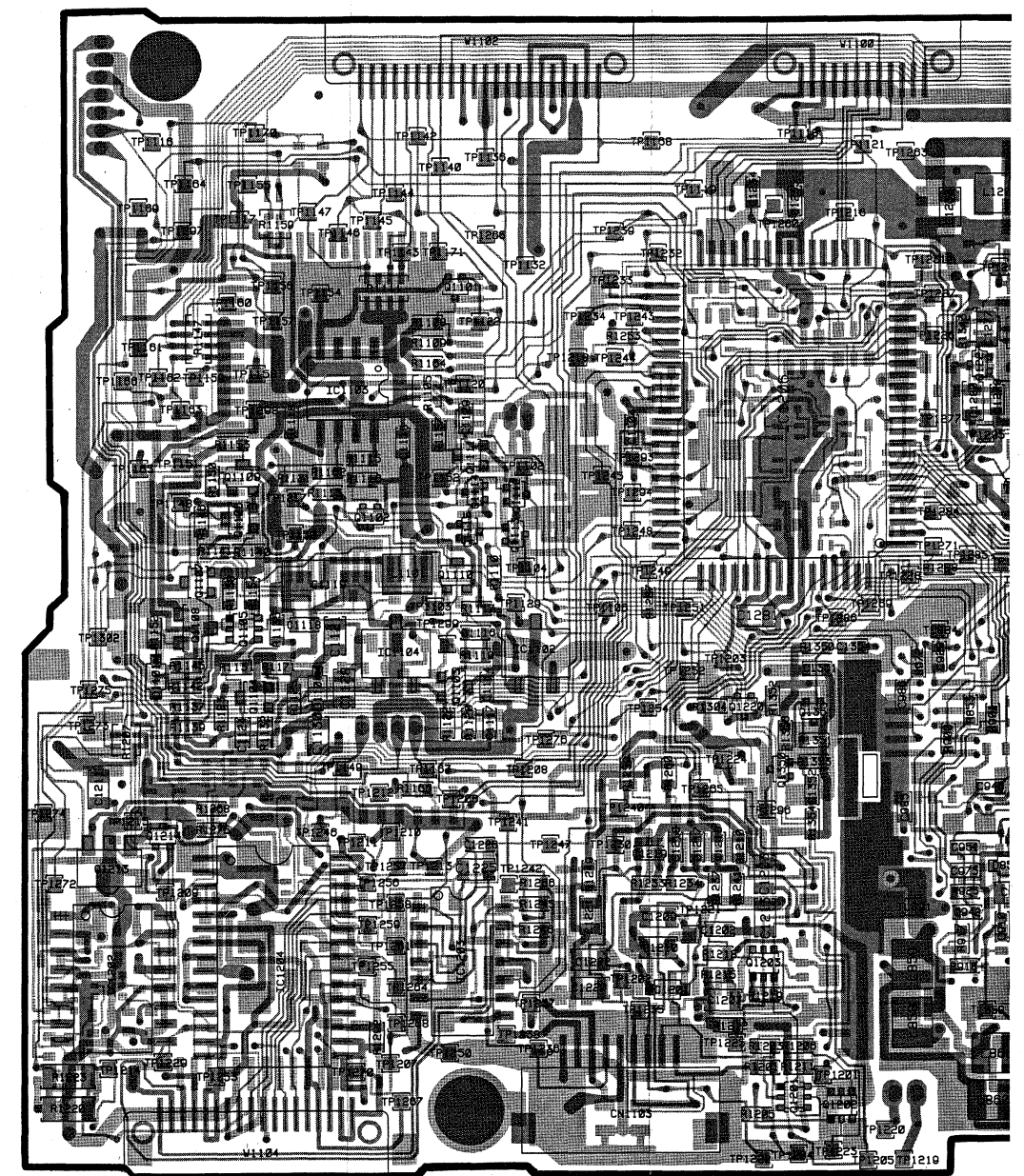
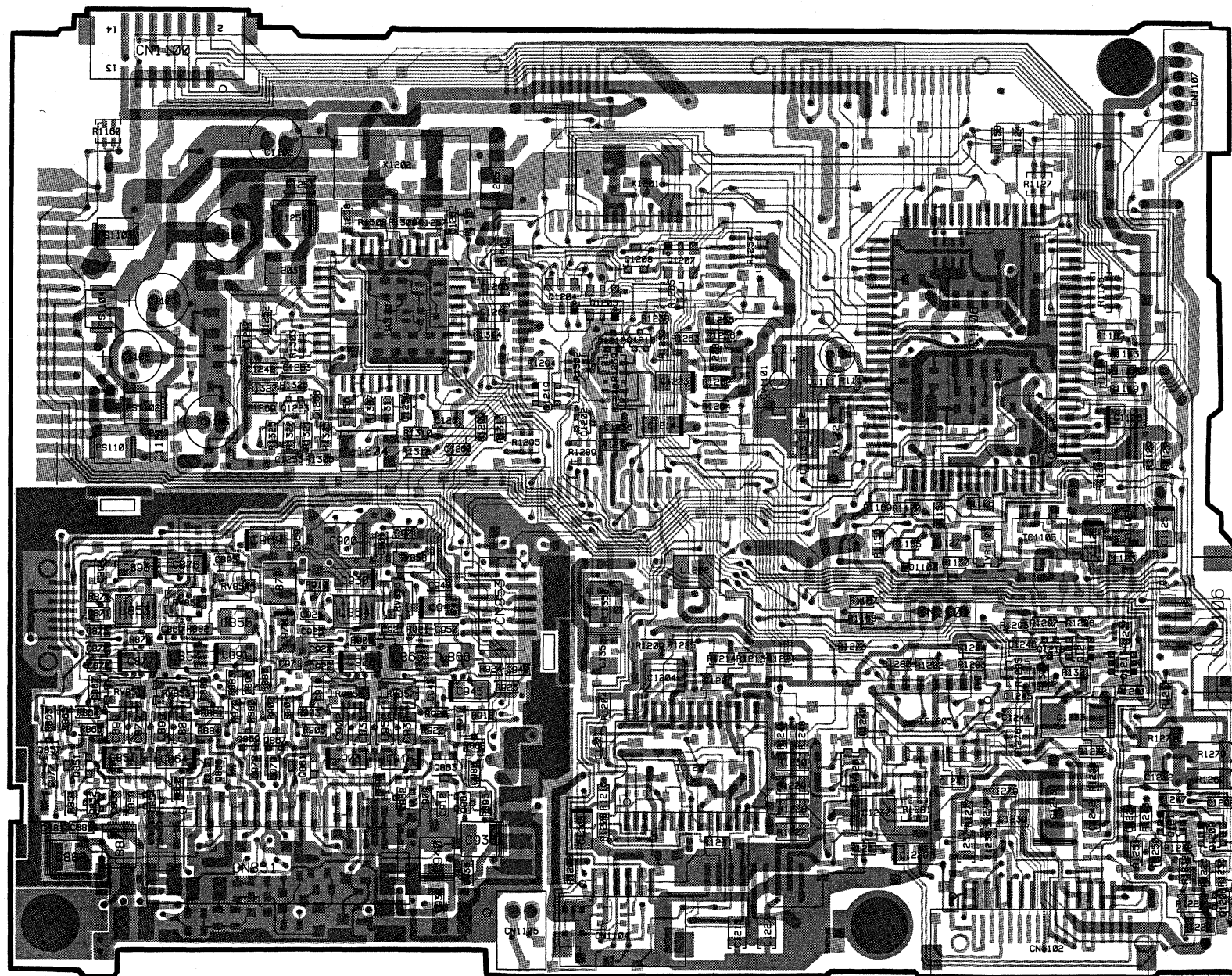


Note:
The components identified by mark Δ of dotted line with mark Δ are critical for safety.
Replace only with part number specified.

FSS board is the printed wiring board which has four layers structure but inner two layer's patterns are omitted.

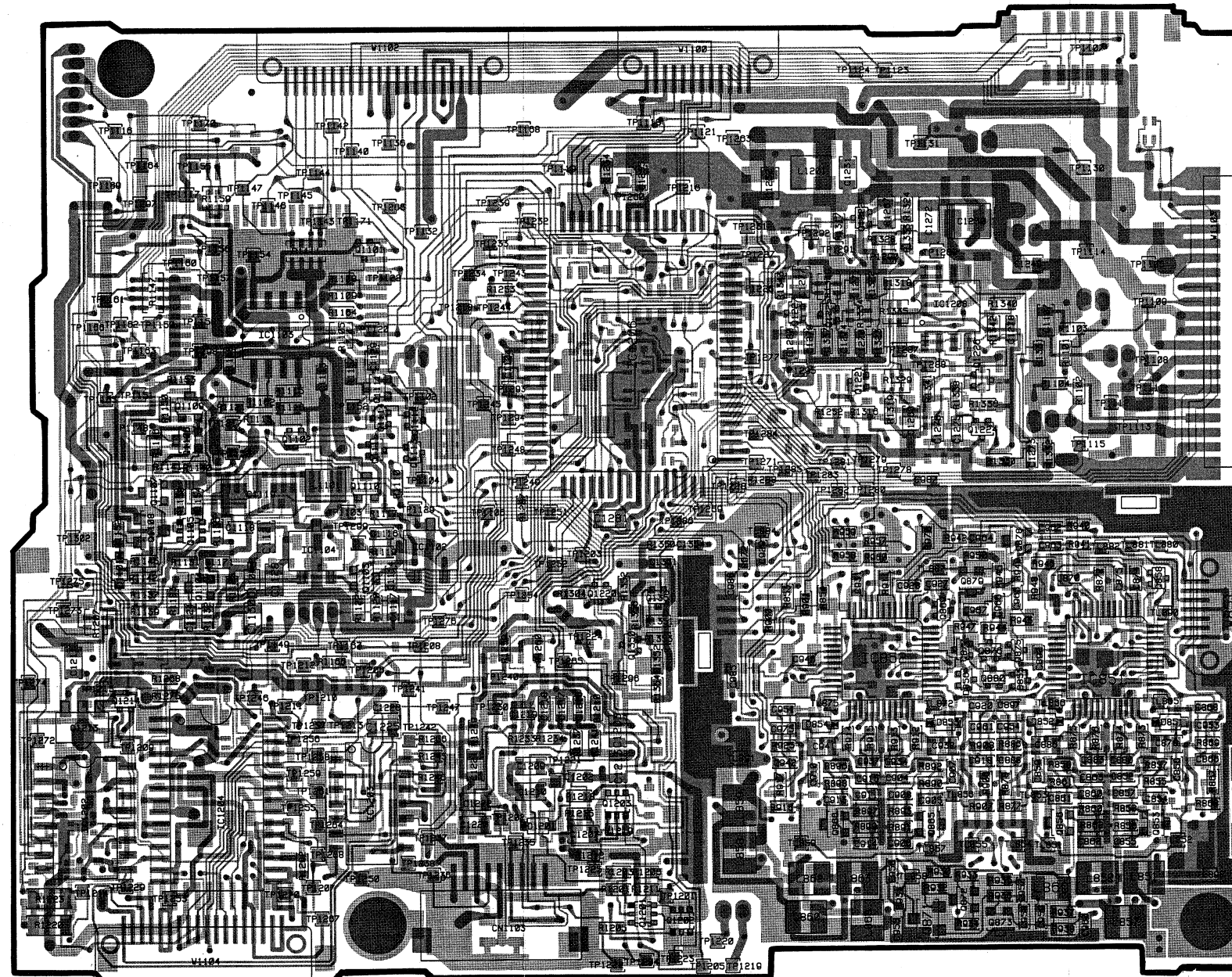
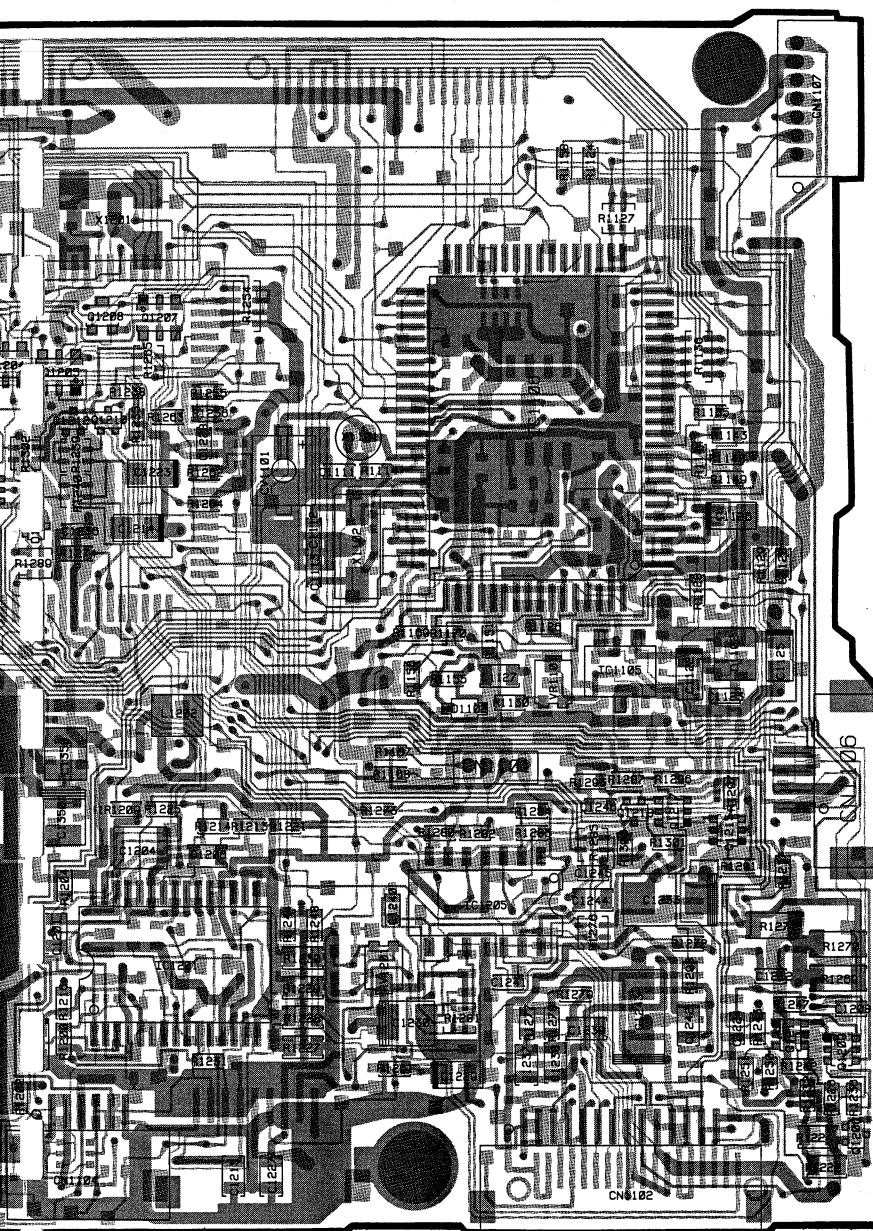
Parts face side: Parts on the parts face side seen
(Component side) from the parts face are indicated.

FSS BOARD (CONDUCTOR SIDE)



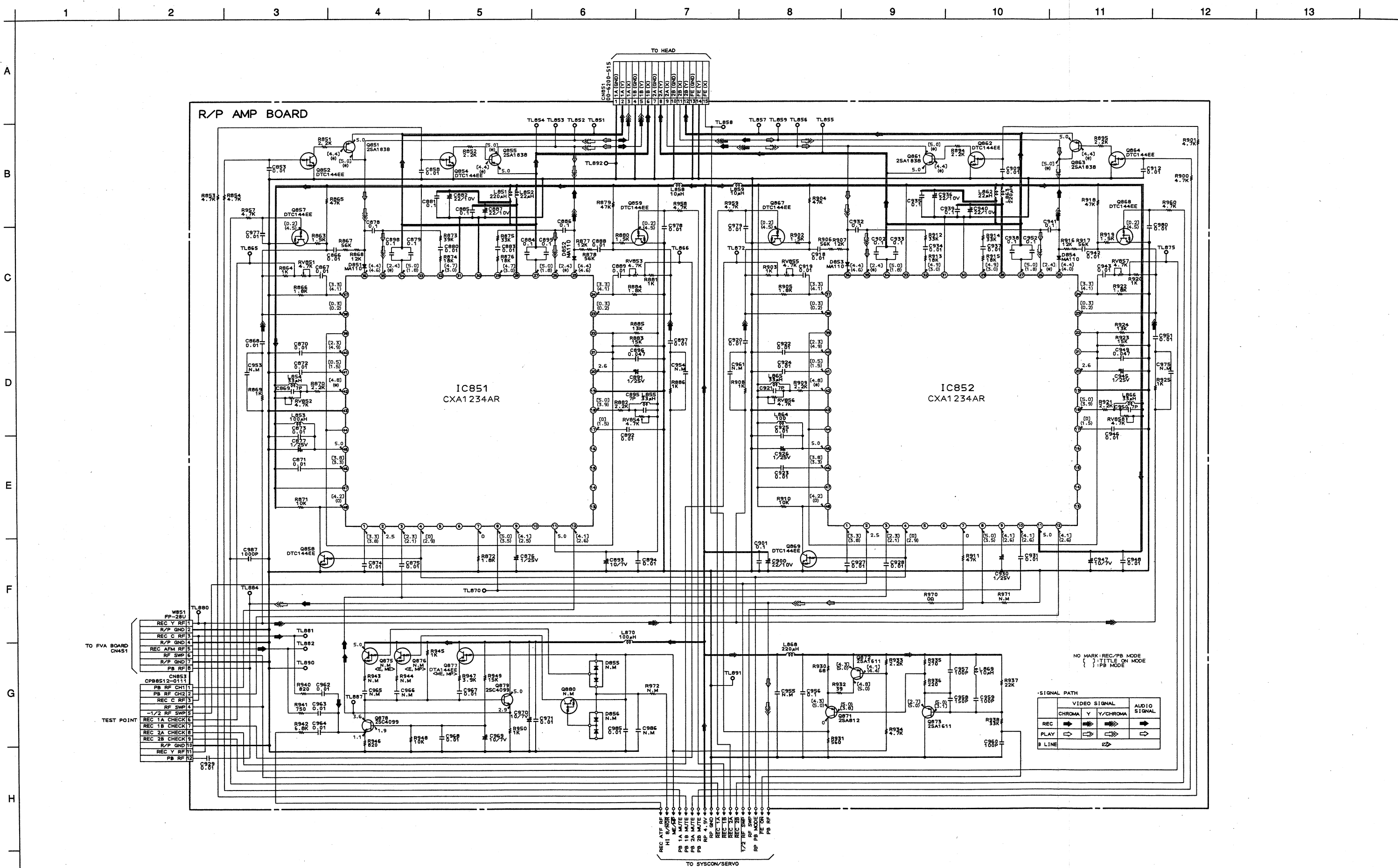
face side:	Parts on the pattern face side seen
etc (side)	from the pattern face are indicated.
ce side:	Parts on the parts face side seen
ment side)	from the parts face are indicated.

FSS BOARD (CONDUCTOR SIDE)

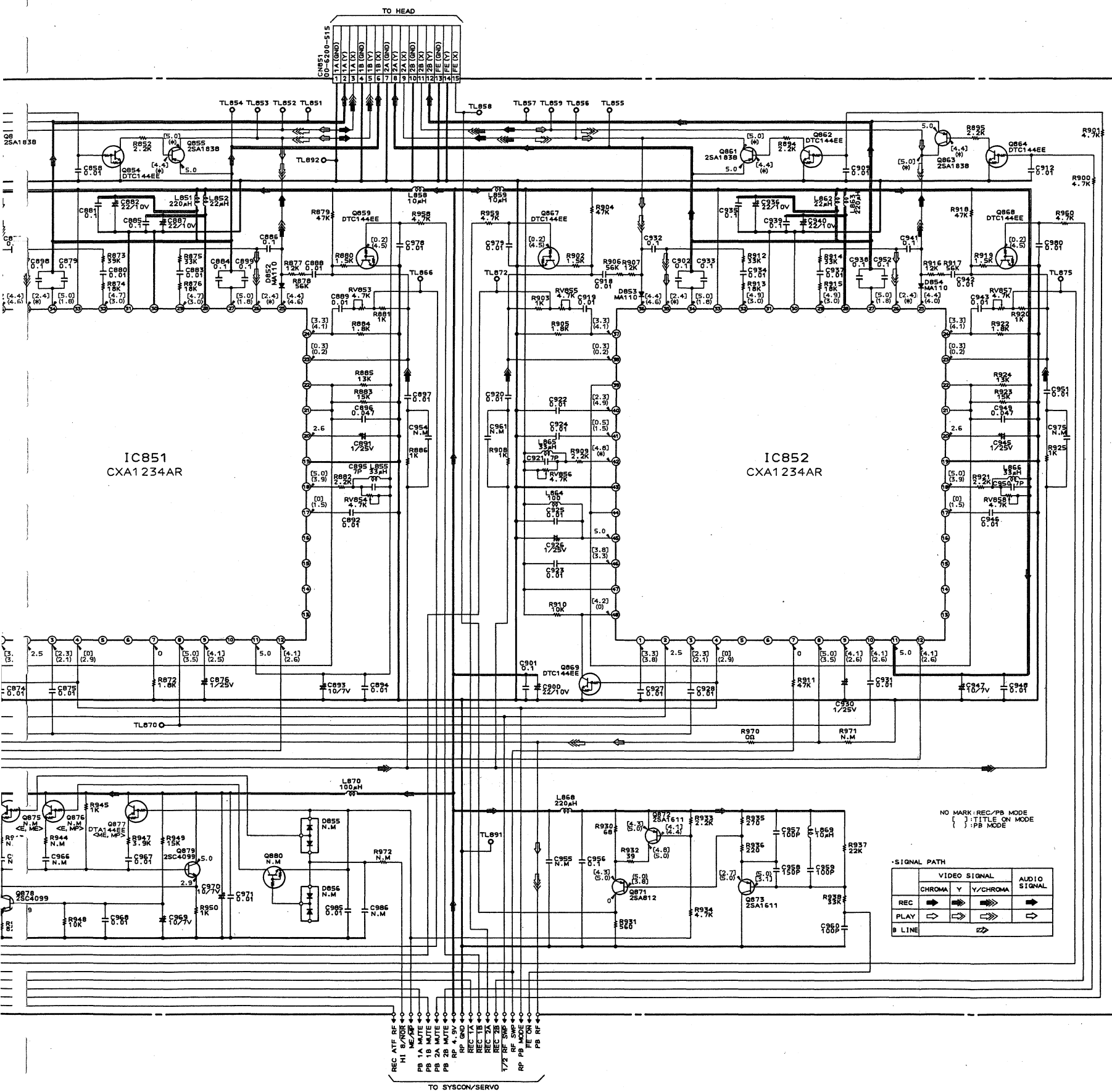


2 Schematic Diagrams

2-7. R/P AMP SCHEMATIC DIAGRAM (FSS BOARD)



4 5 6 7 8 9 10 11 12 13 14 15 16



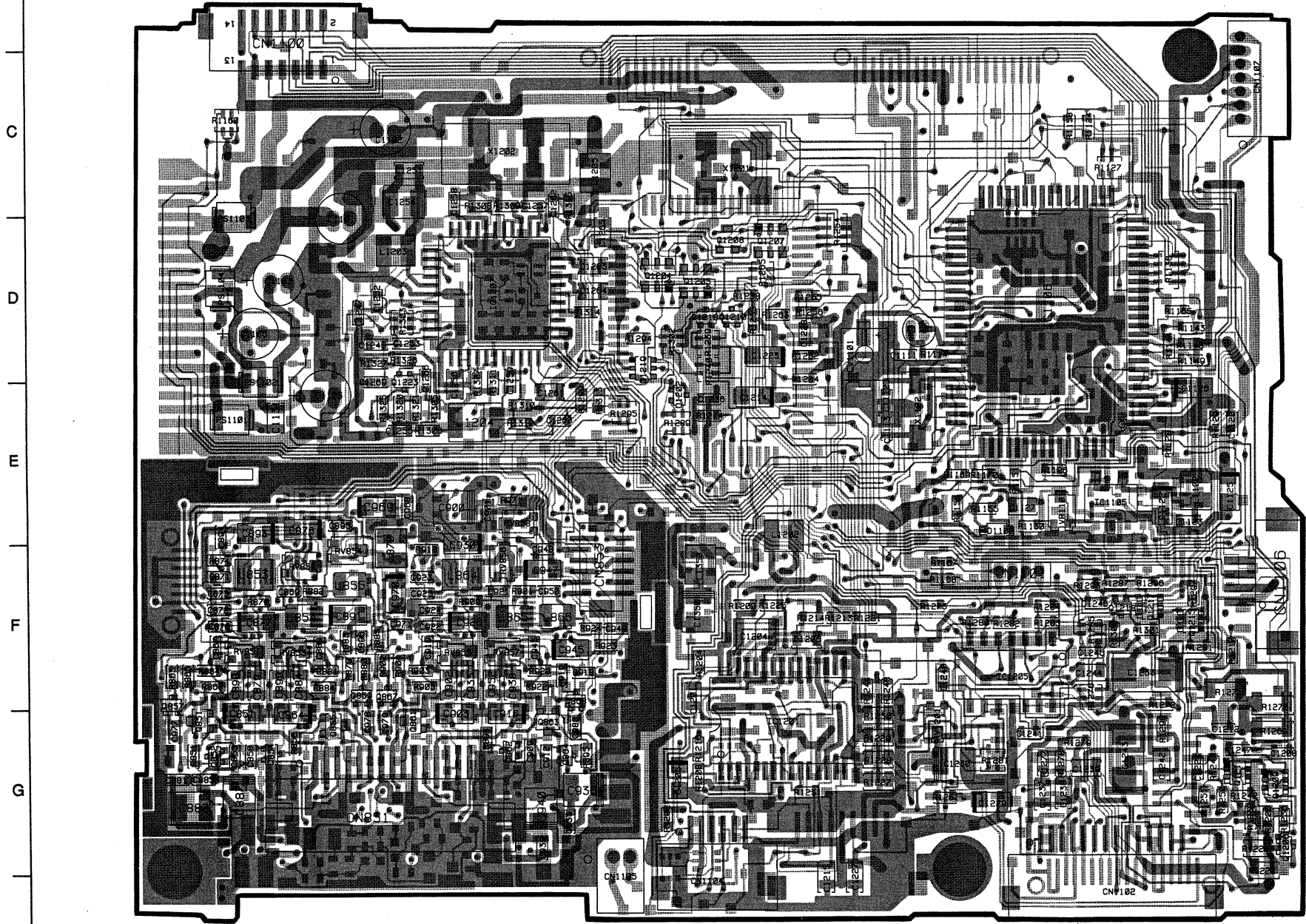
[FSS BOARD COMPONENT LOCATIONS]

	1	2	3	4	5	6	7	8	9	10	11	12	13
--	---	---	---	---	---	---	---	---	---	----	----	----	----

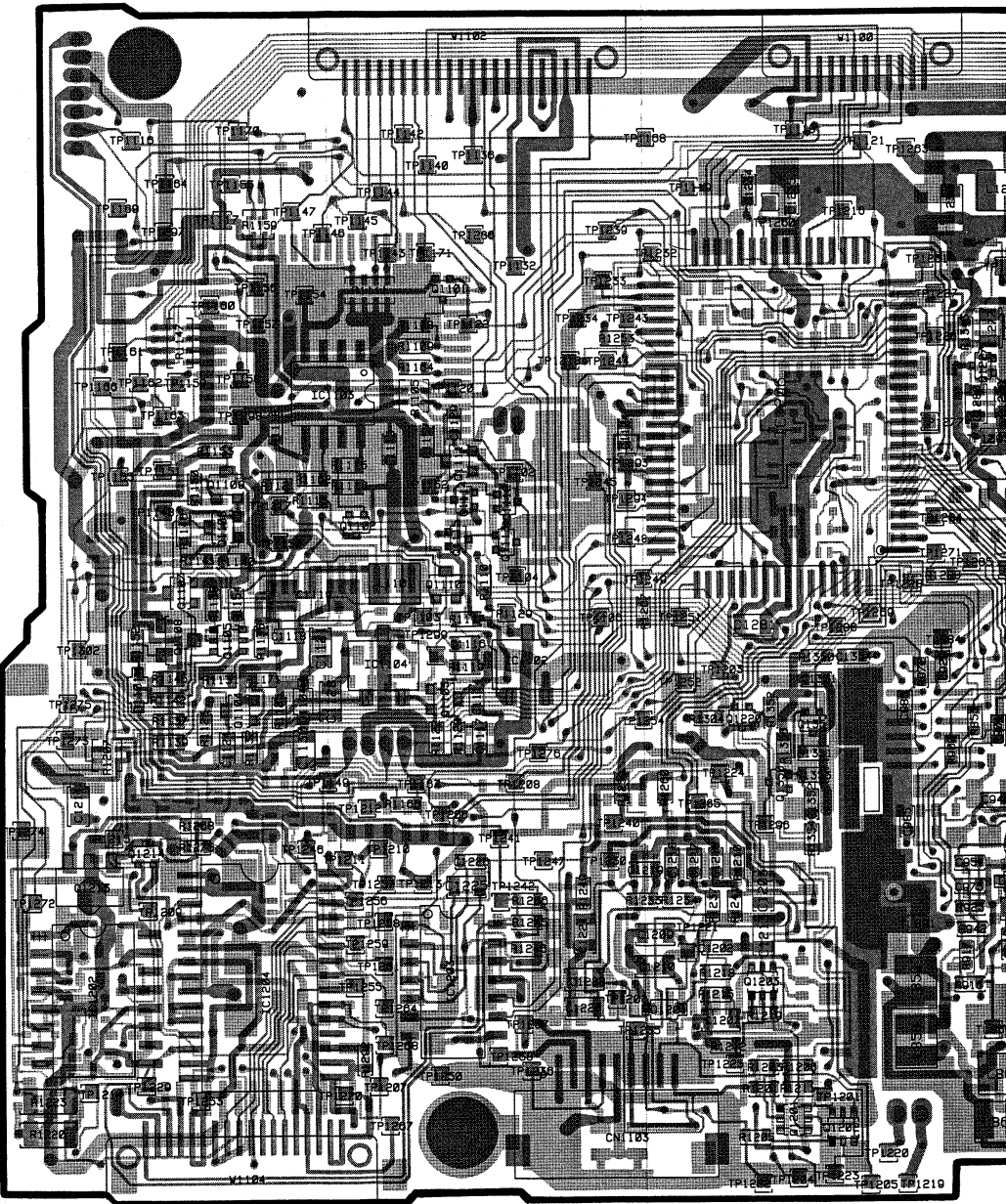
A For printed wiring boards.
FSS board is the printed wiring board which has four layers structure but inner two layer's patterns are omitted.

Caution:
Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: Parts on the parts face side seen from the parts face are indicated.

B FSS BOARD (COMPONENT SIDE)



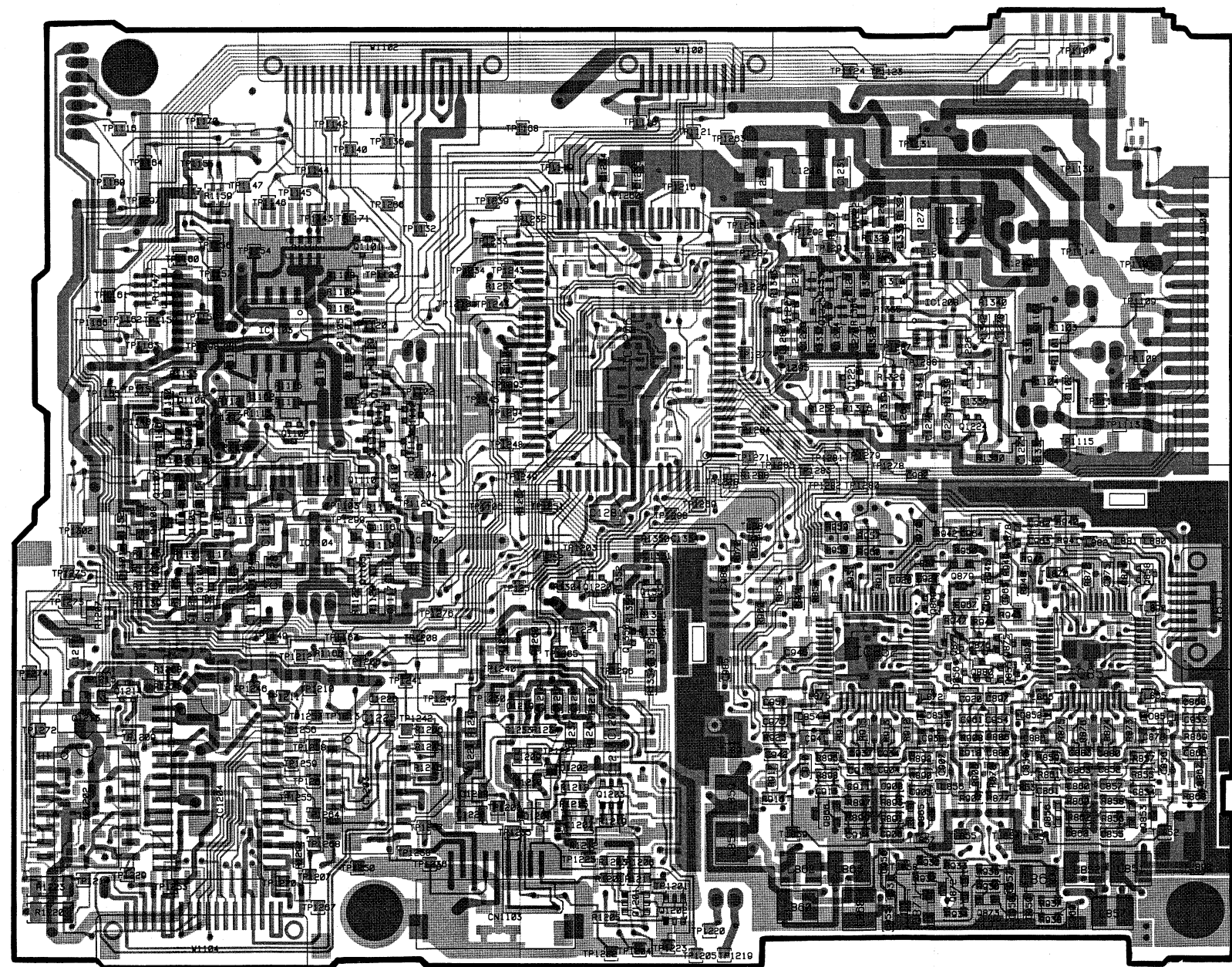
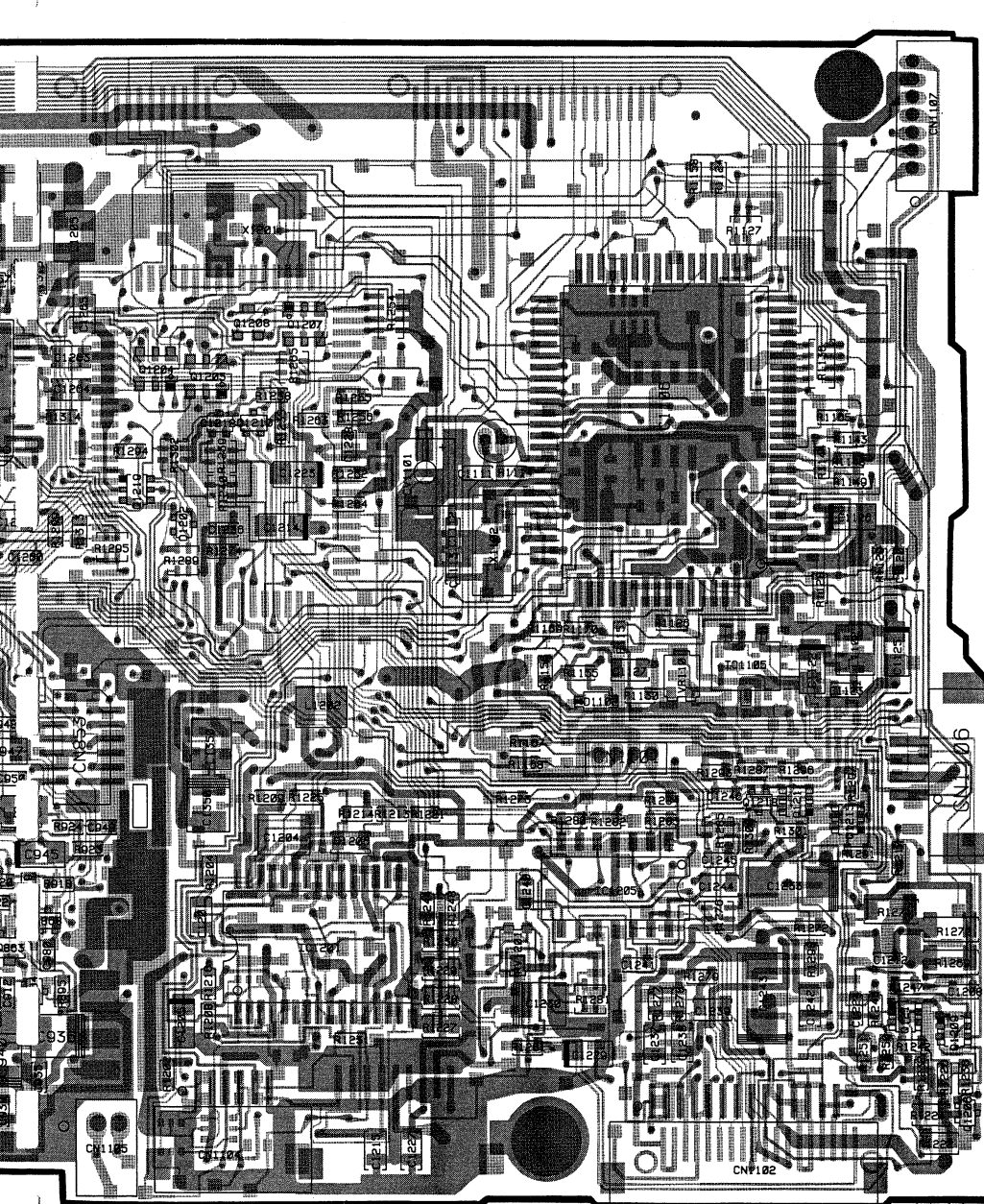
FSS BOARD (CONDUCTOR SIDE)



Caution:

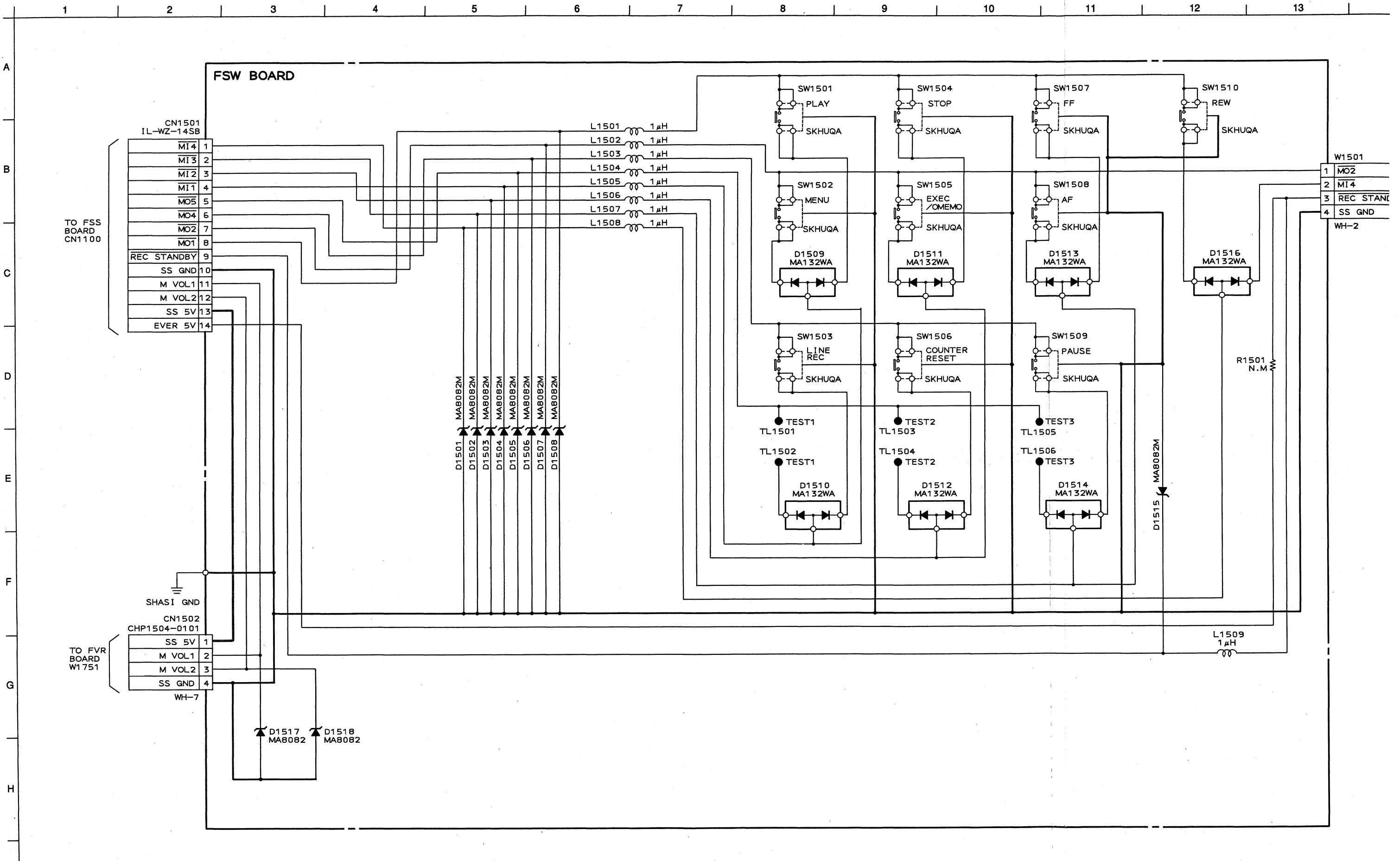
Pattern face side: (Conductor side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

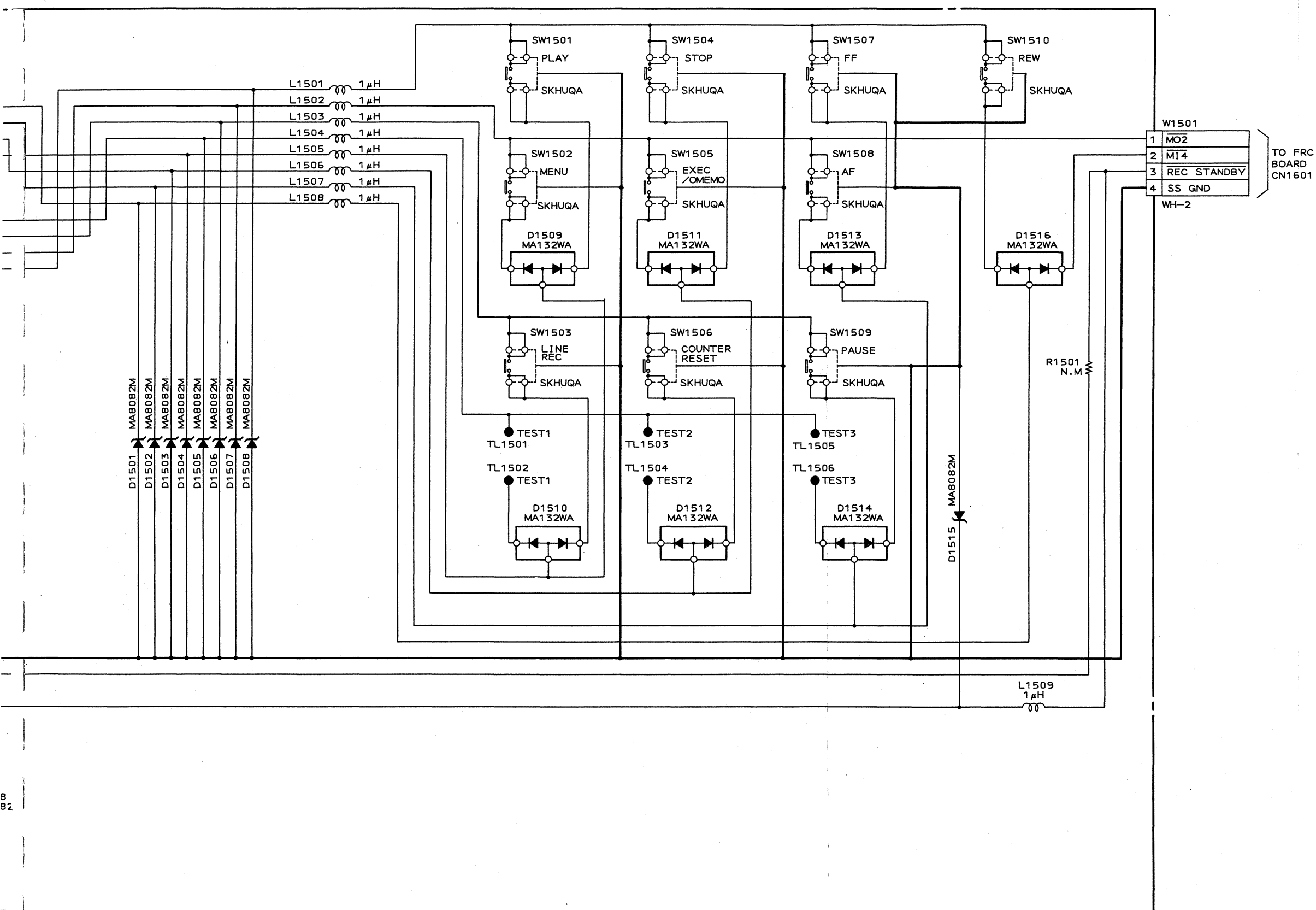
FSS BOARD (CONDUCTOR SIDE)



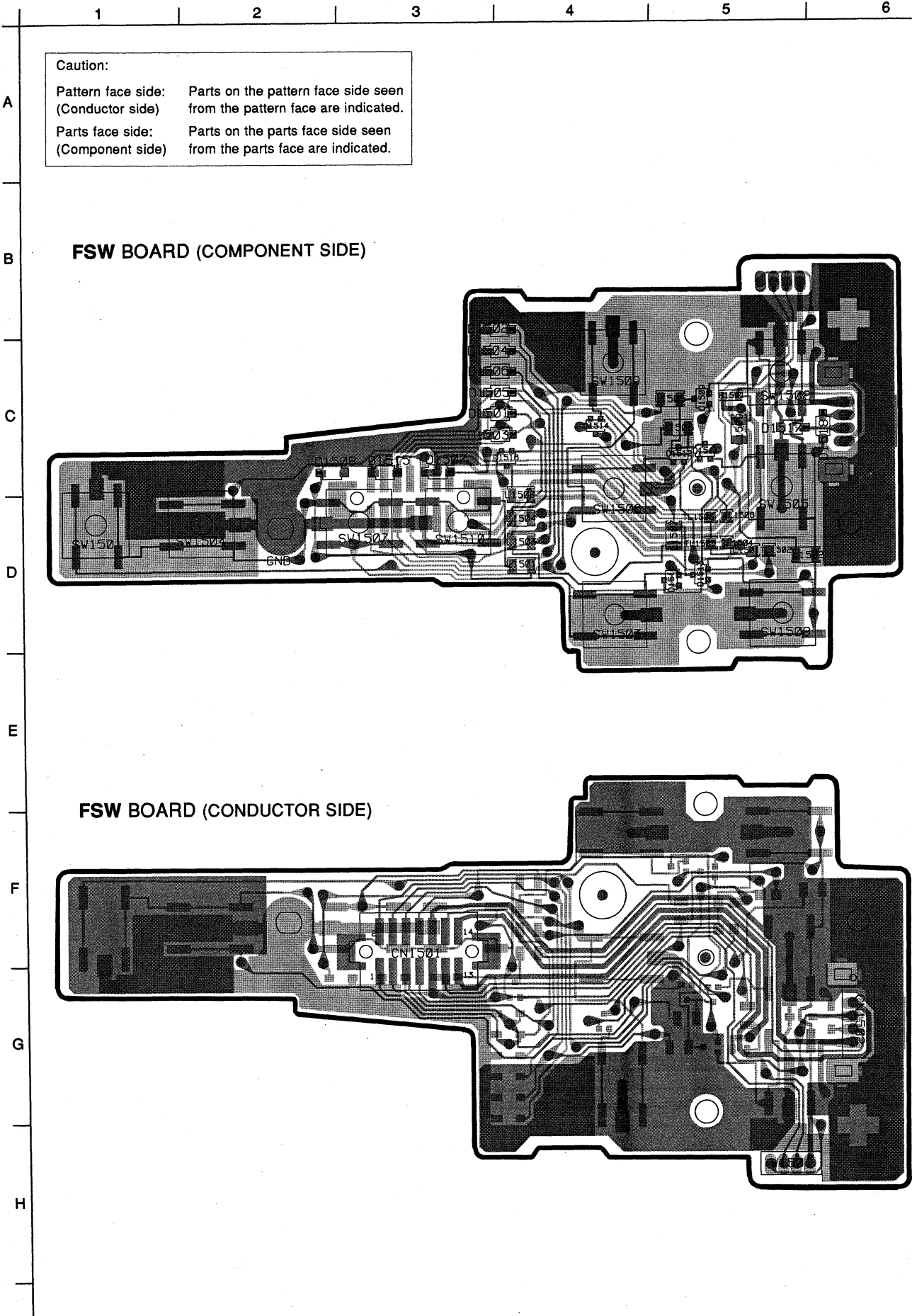
2 Schematic Diagrams

2-8. SWITCH SCHEMATIC DIAGRAM (FSW BOARD)

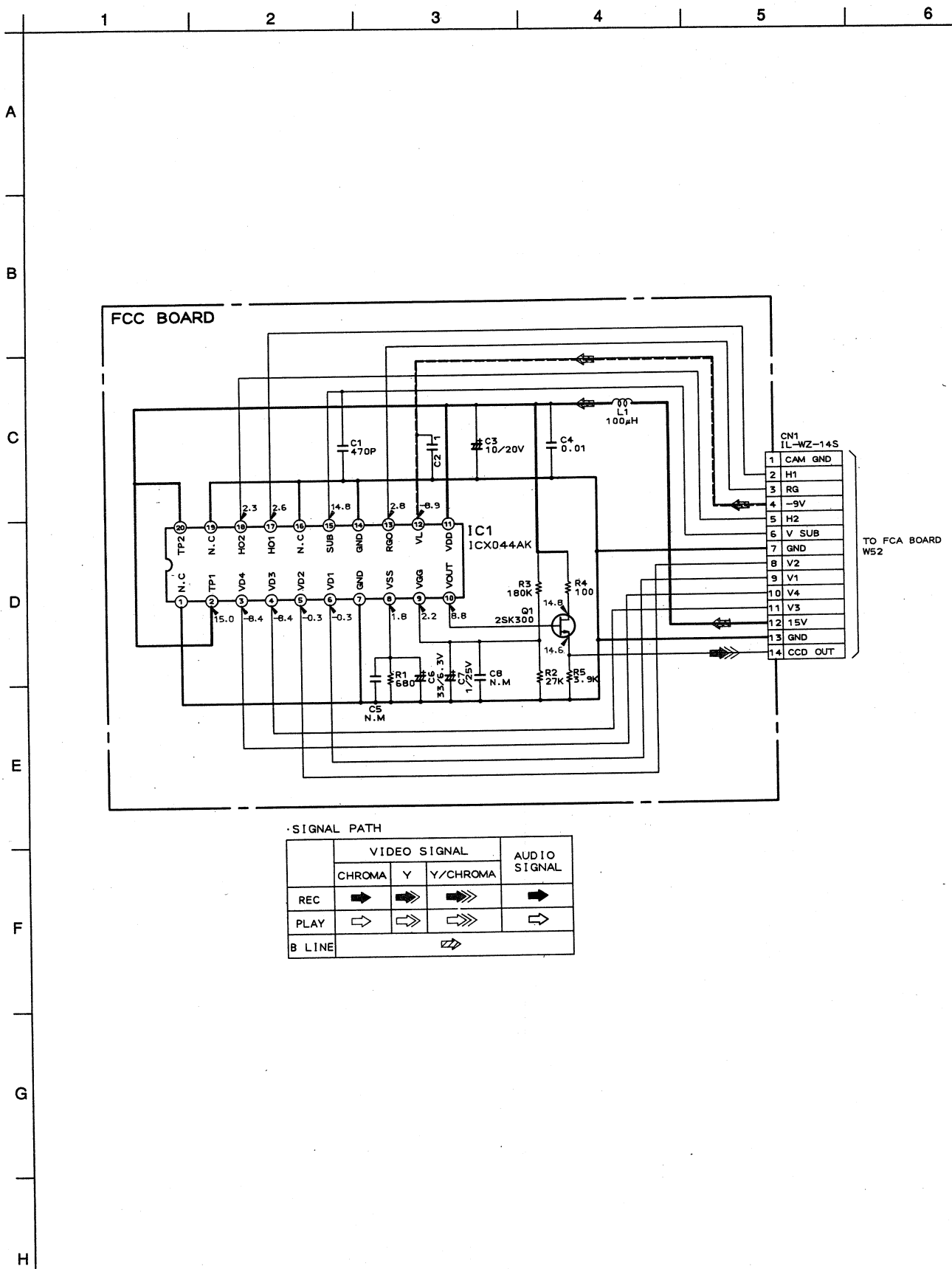




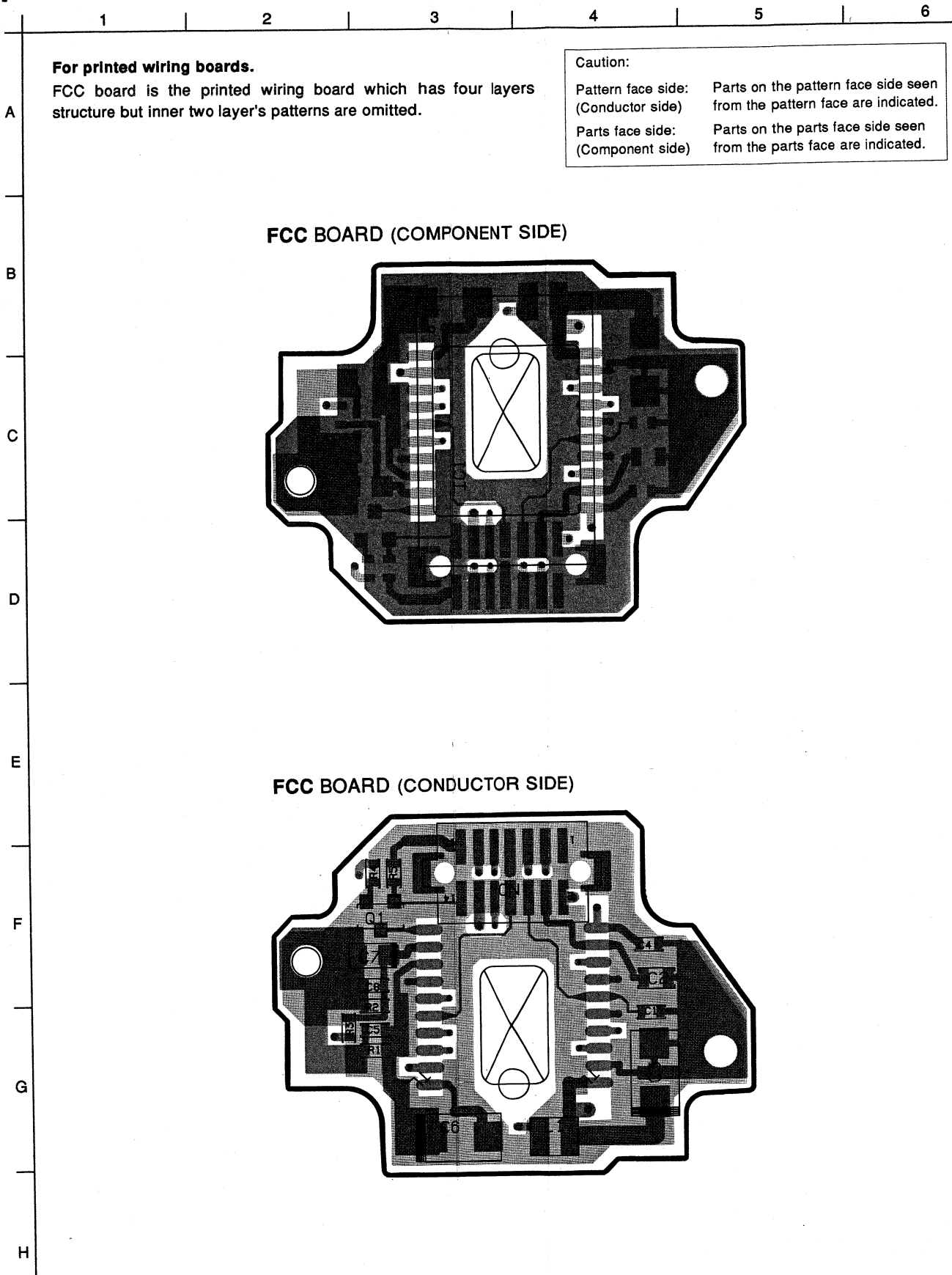
[FSW BOARD COMPONENT LOCATIONS]



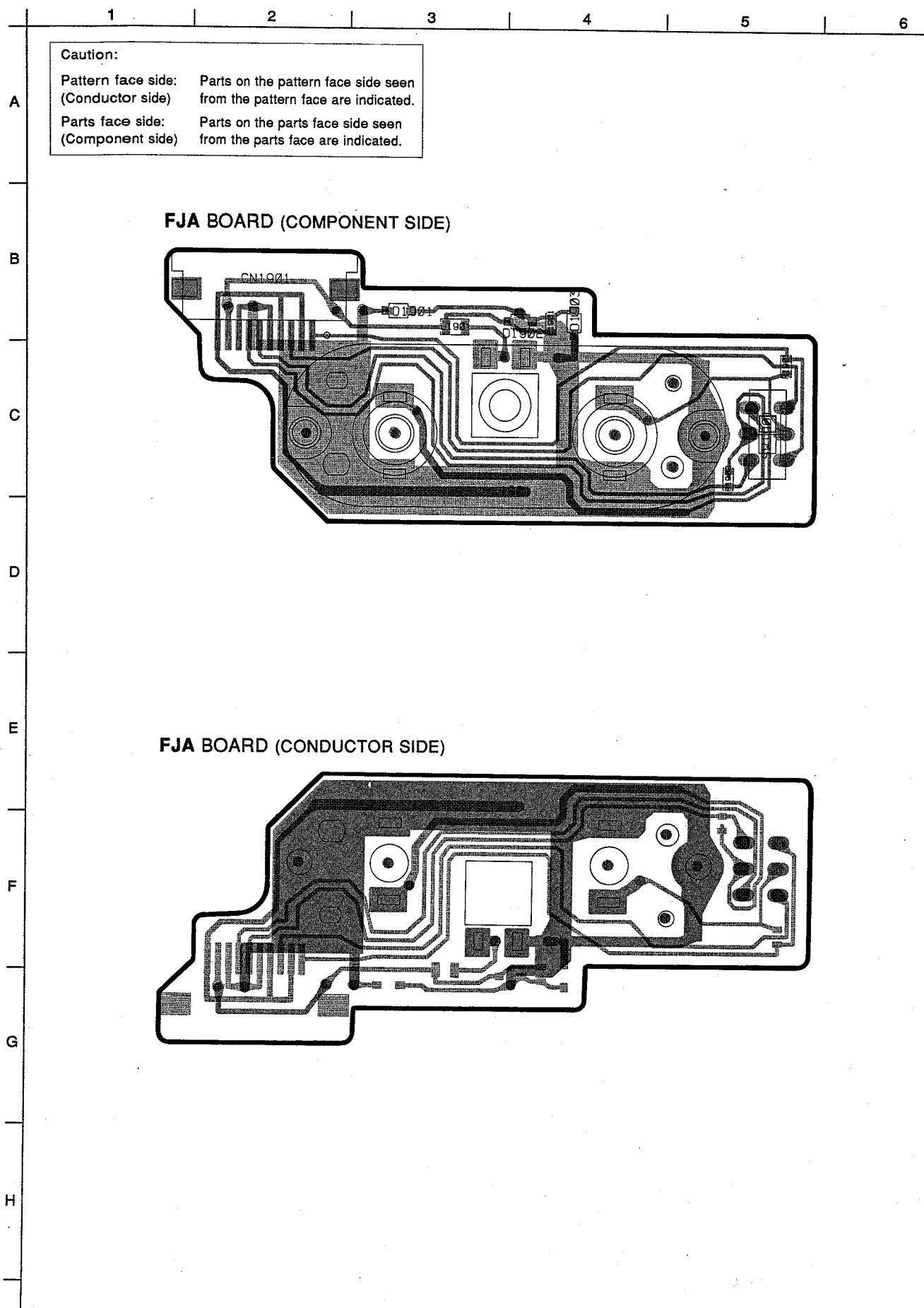
2-10. CCD SCHEMATIC DIAGRAM (FCC BOARD)



[FCC BOARD COMPONENT LOCATIONS]



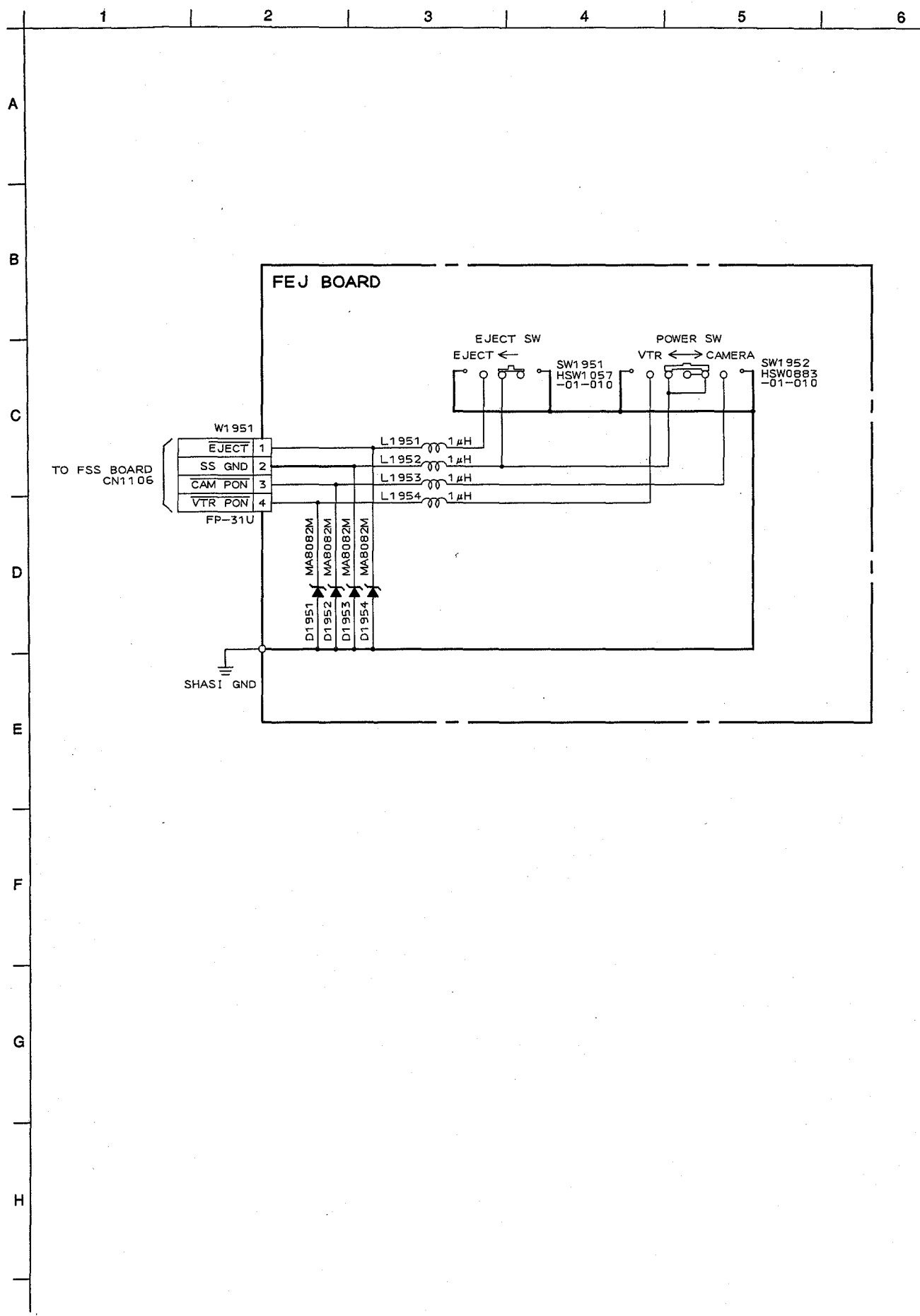
[FJA BOARD COMPONENT LOCATIONS]



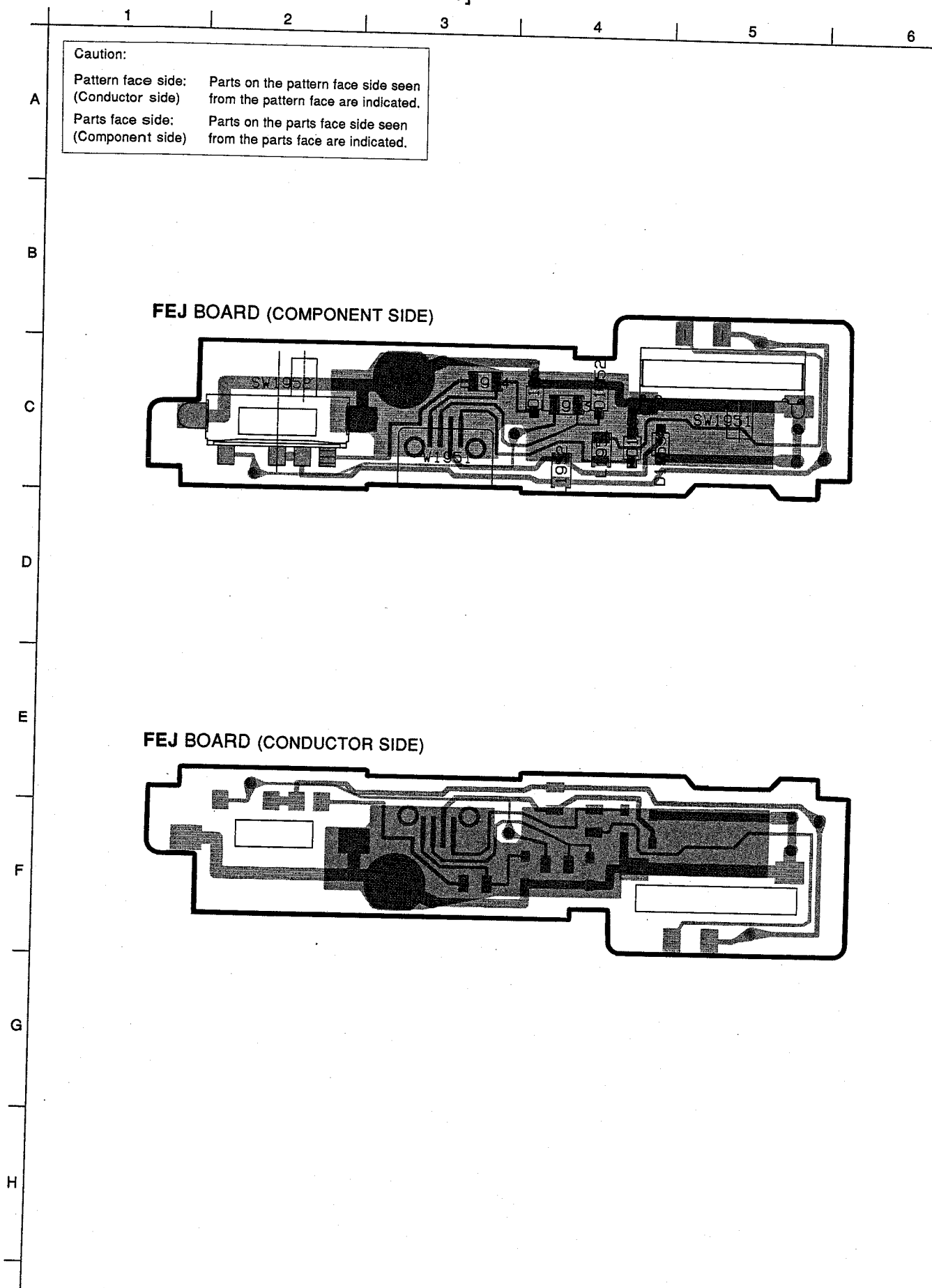
2 Schematic Diagrams

FF120SW SCHEMATICS

2-14. EJECT SCHEMATIC DIAGRAM (FEJ BOARD)



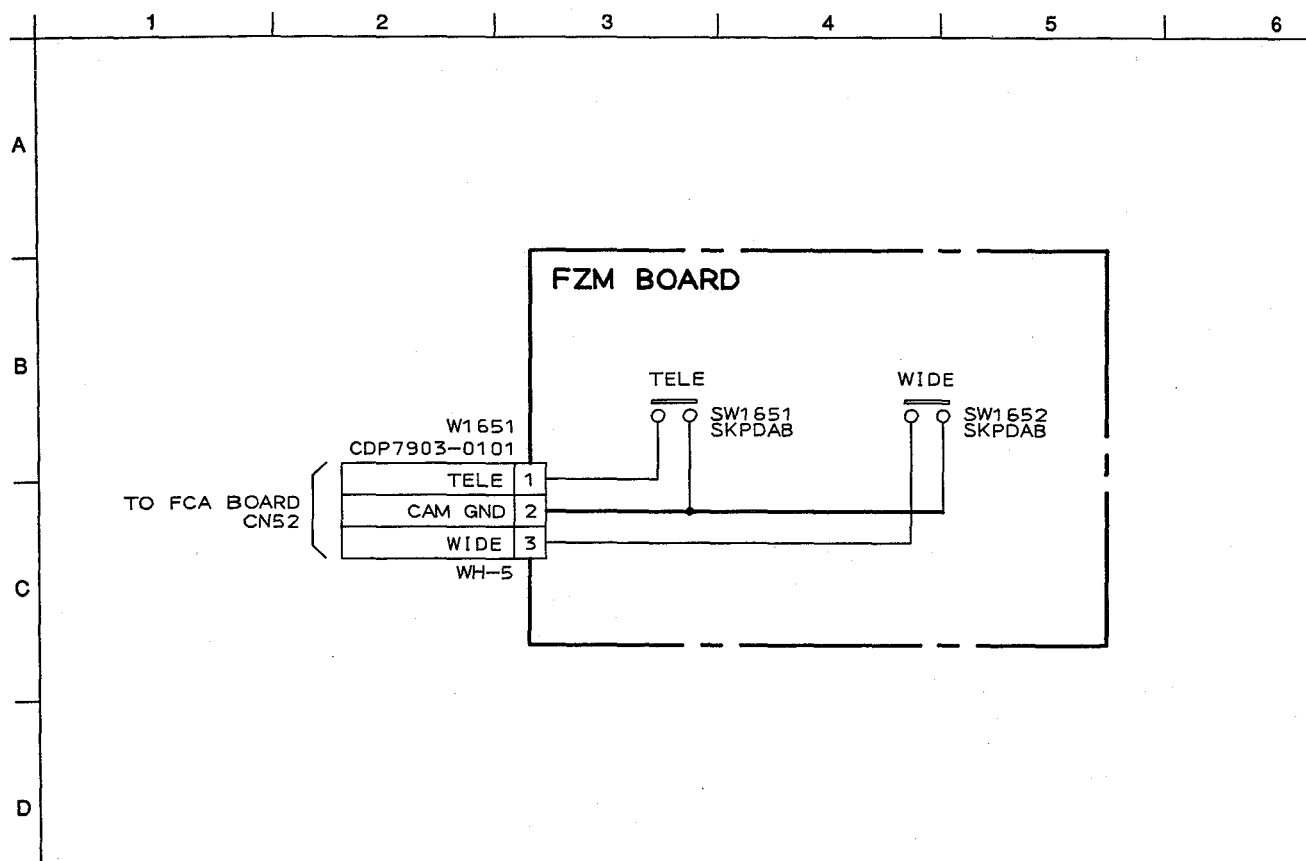
[FEJ BOARD COMPONENT LOCATIONS]



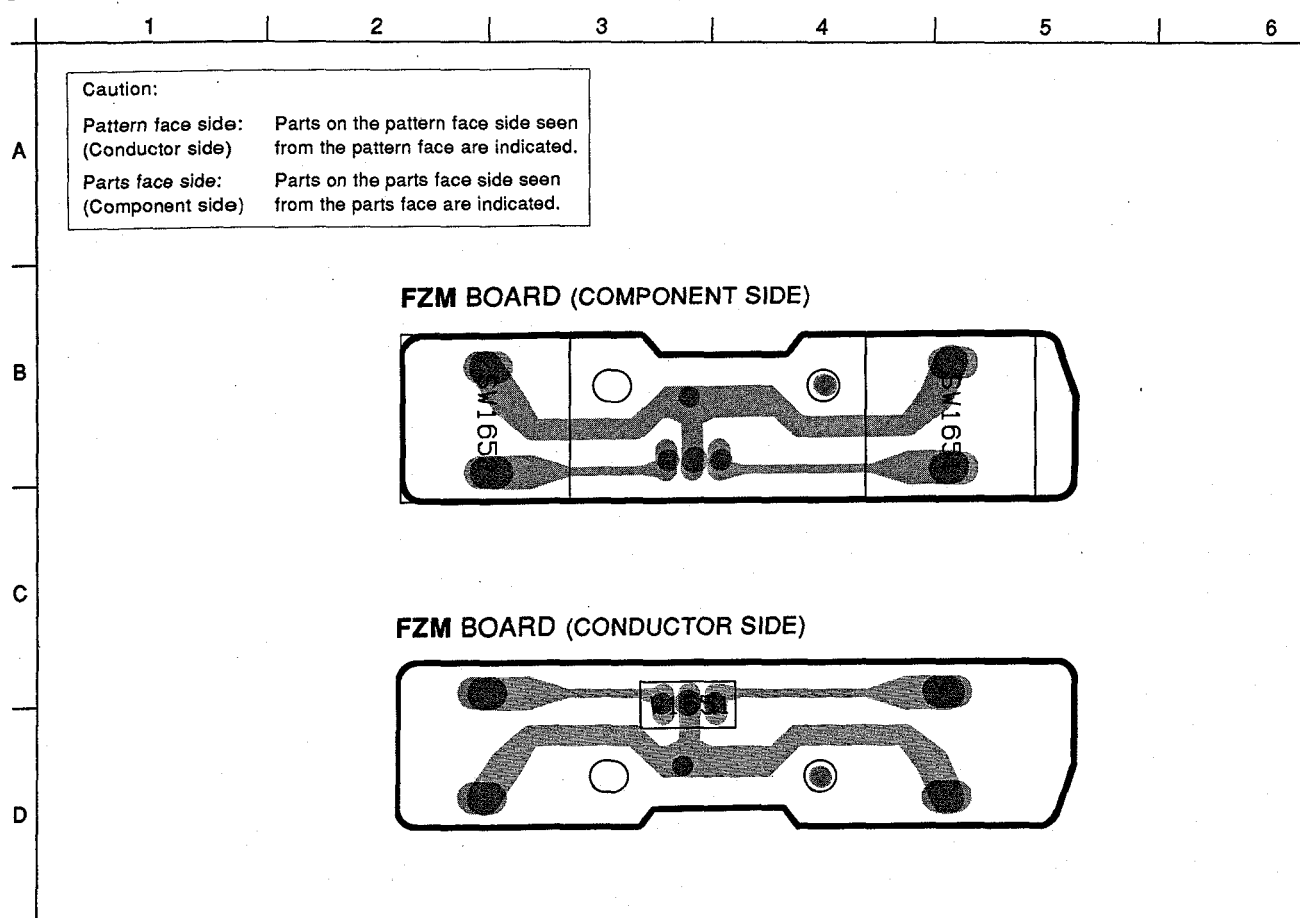
2 Schematic Diagrams

FF120SW SCHEMATICS

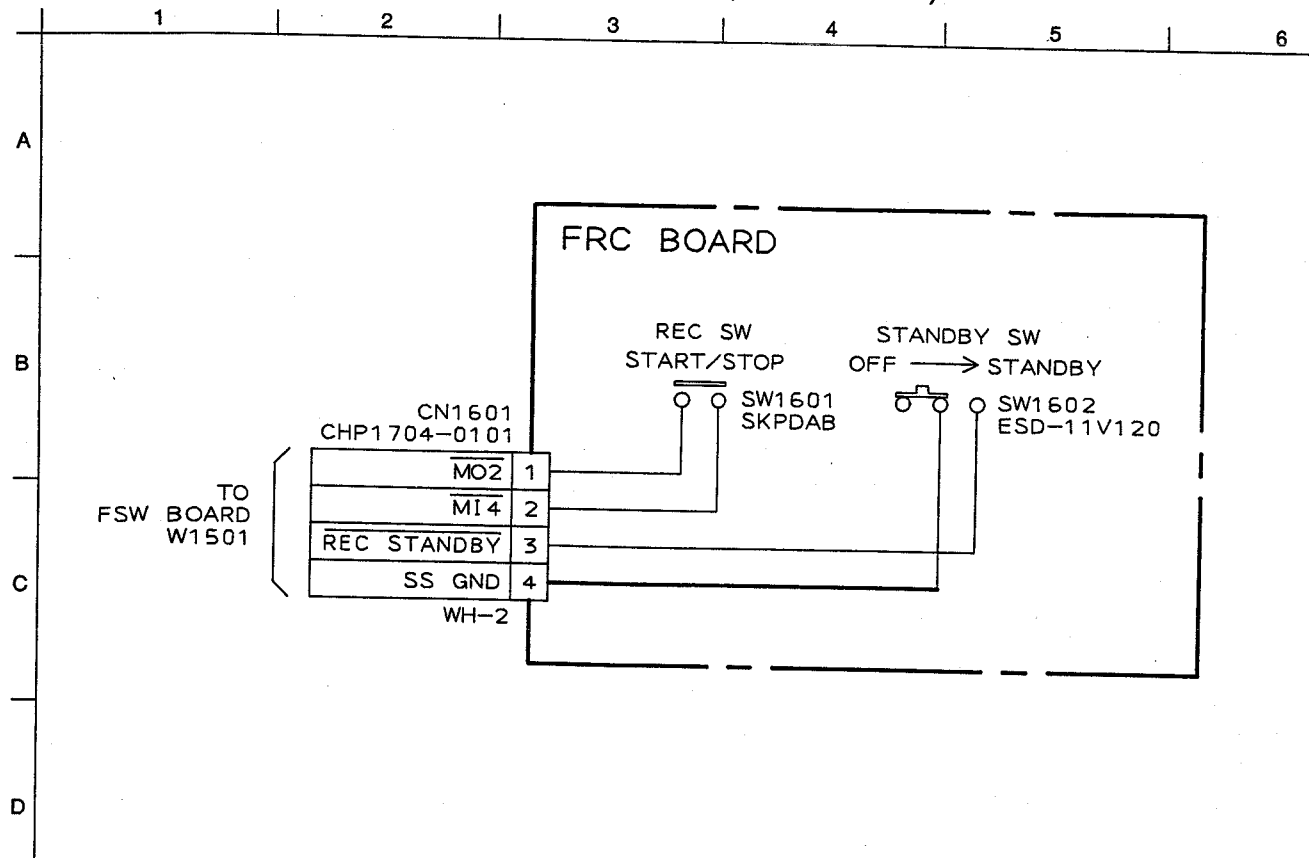
2-15. ZOOM SCHEMATIC DIAGRAM (FZM BOARD)



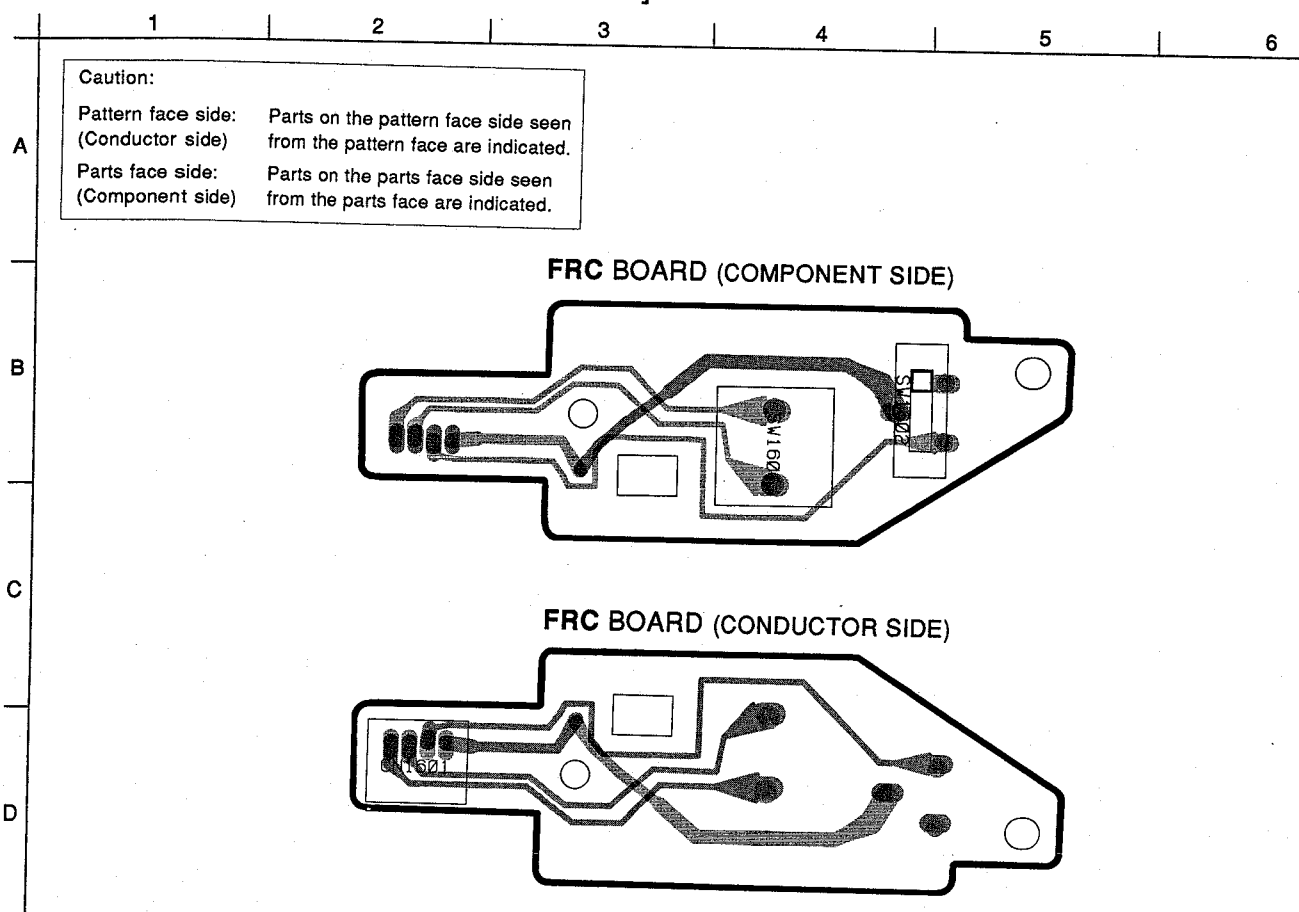
[FZM BOARD COMPONENT LOCATIONS]



2-16. REC CONTROL SCHEMATIC DIAGRAM (FRC BOARD)



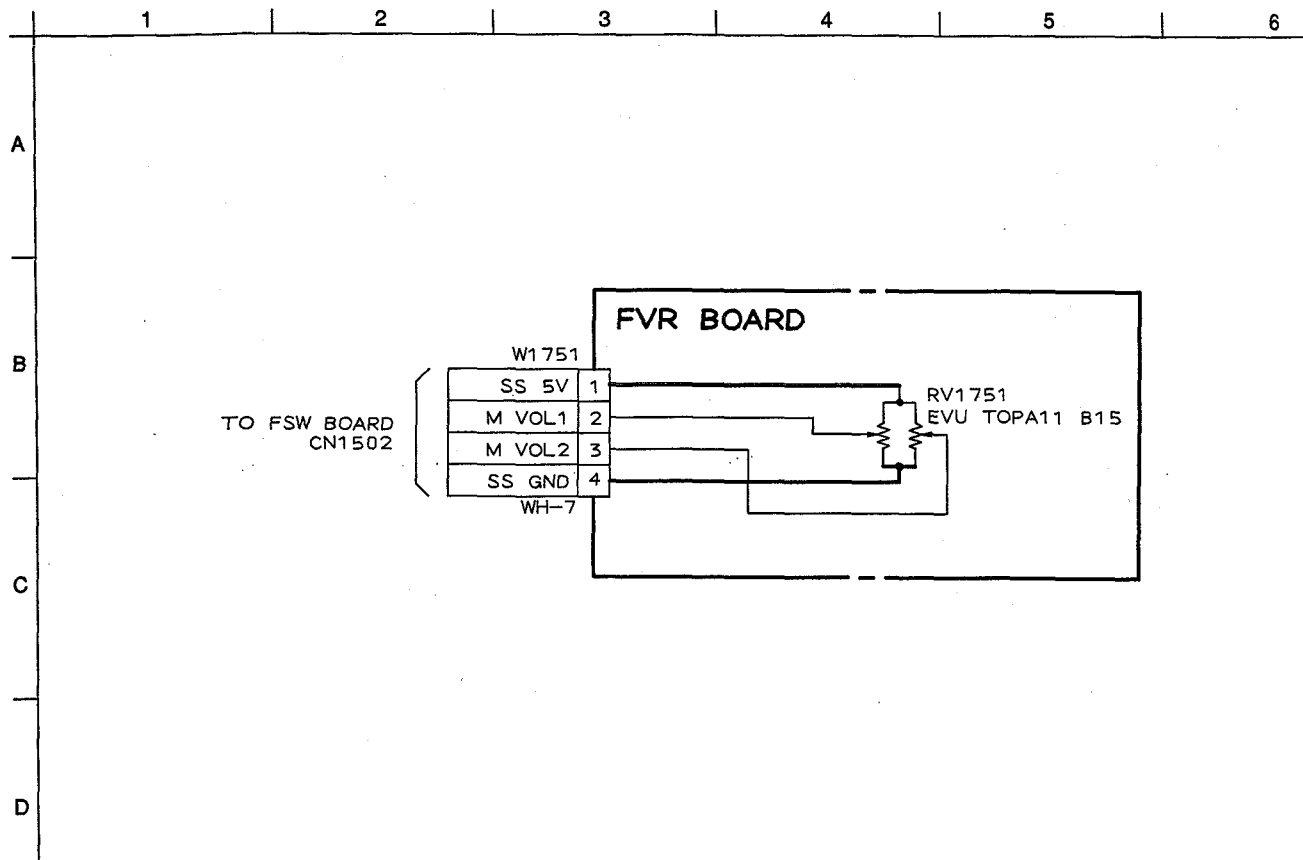
[FRC BOARD COMPONENT LOCATIONS]



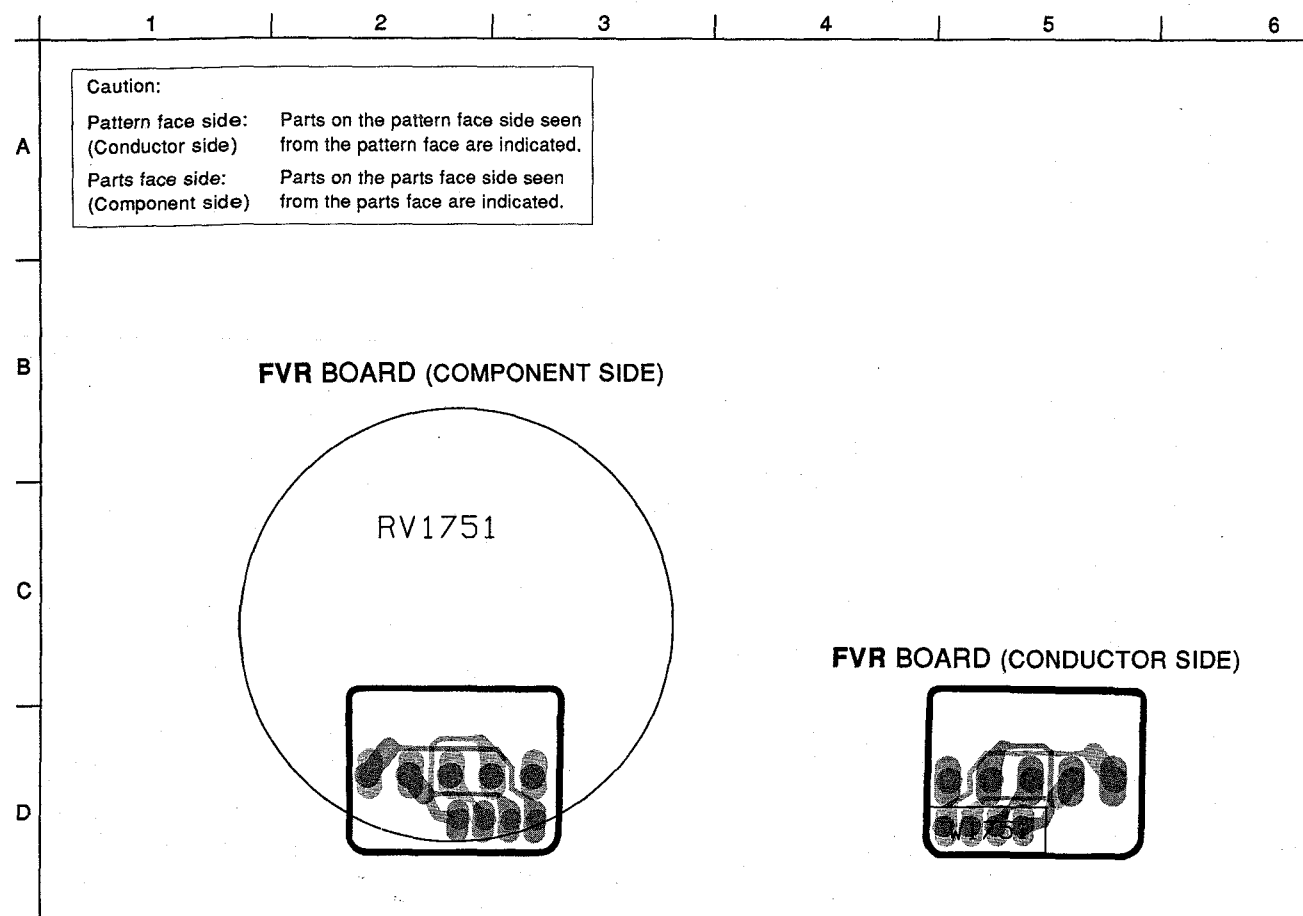
2 Schematic Diagrams

FF120SW SCHEMATICS

2-17. VOLUME SCHEMATIC DIAGRAM (FVR BOARD)

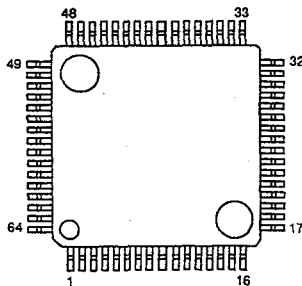


[FVR BOARD COMPONENT LOCATIONS]

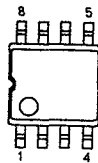


3. SEMICONDUCTORS

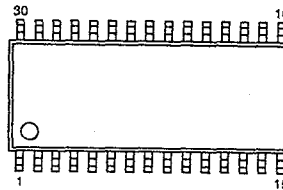
AN6545SP-(E1)
CXA1207AR-T5
CXA1391R-T5
CXD1253AR-T5
FF2044A



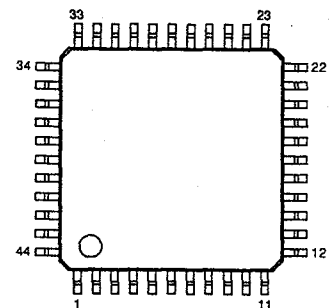
BA7046F-T1



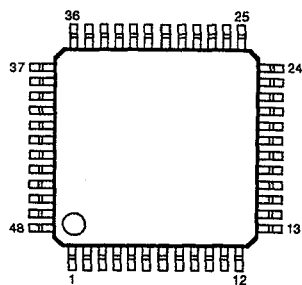
CXA1127AM-T1



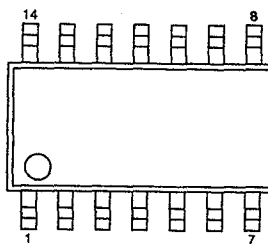
CXA1204Q



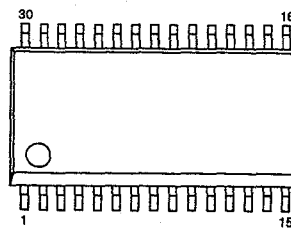
CXA1208R-T3
CXA1234AR-T3
CXA1390AR-T3
CXA1392R-T3
FB9209-T3



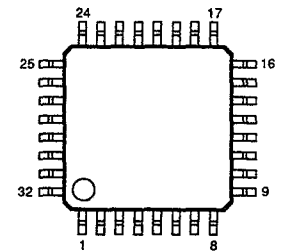
CXA1512M-T3
UPC324G2-T1



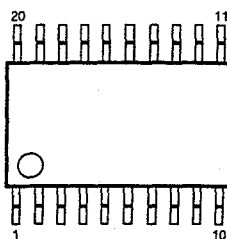
CXA8006M-Q-E1



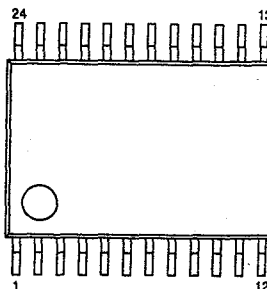
CXD1159Q-T3



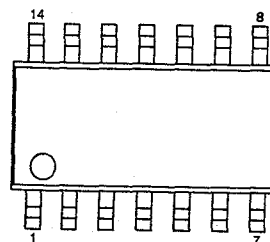
CXD1250N-T3
UPD6951G-T1



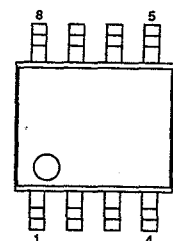
CXL1508N-T3



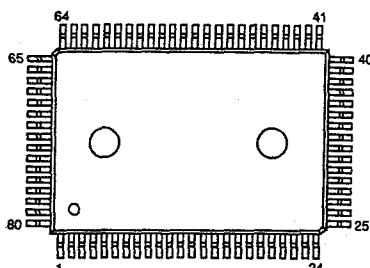
CXL5502M-T3



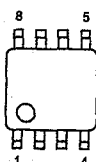
CXL5504M-T3
UPC393G2-T1



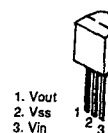
CXP80116-590Q



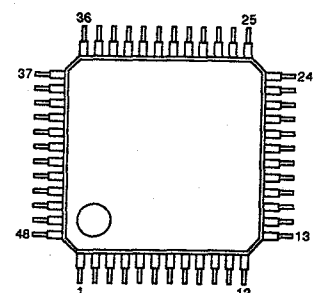
IC-LVA523F-2
MM1036XFF-T1



IC-PST7040MT
MM1060GMR



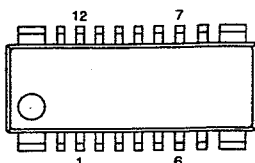
LA7454W



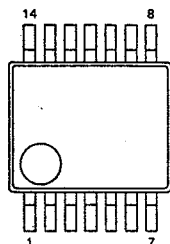
3 Semiconductors

FF120SW SCHEMATICS

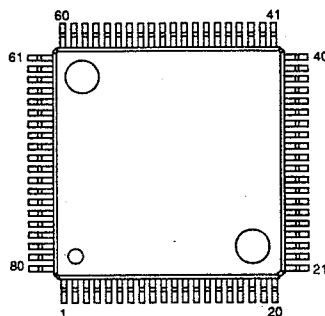
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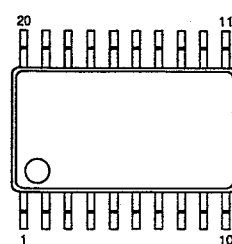
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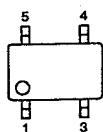
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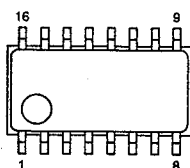
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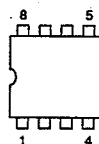
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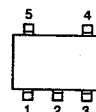
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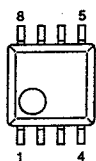
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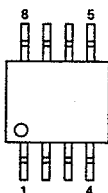
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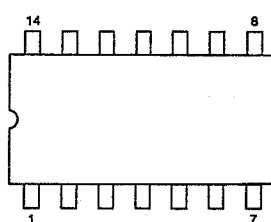
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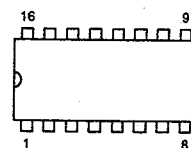
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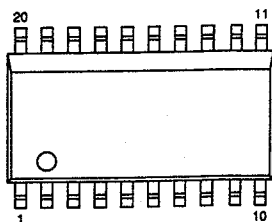
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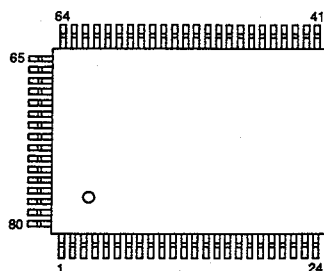
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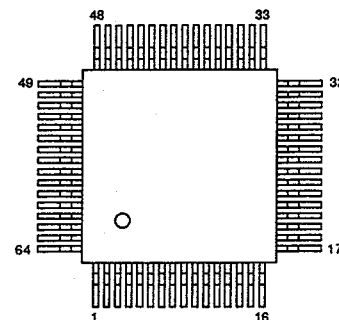
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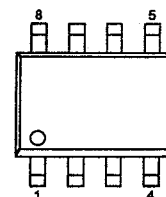
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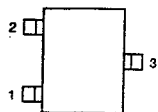
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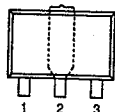


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2SC4099 T106
DTC144TU-T106



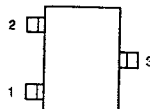
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2. BASE
3. COLLECTOR

2SB1132-T101-QR



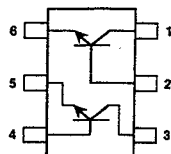
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2. COLLECTOR
3. EMITTER

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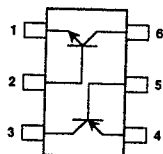
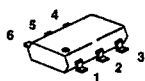


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2. SOURCE
3. GATE

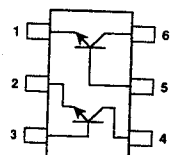
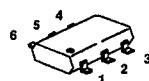
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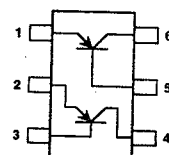
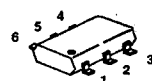
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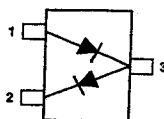
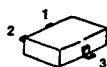
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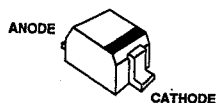
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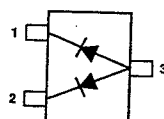
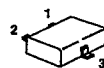
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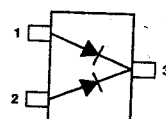
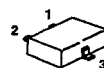
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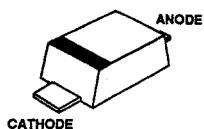
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MA152WA-TX



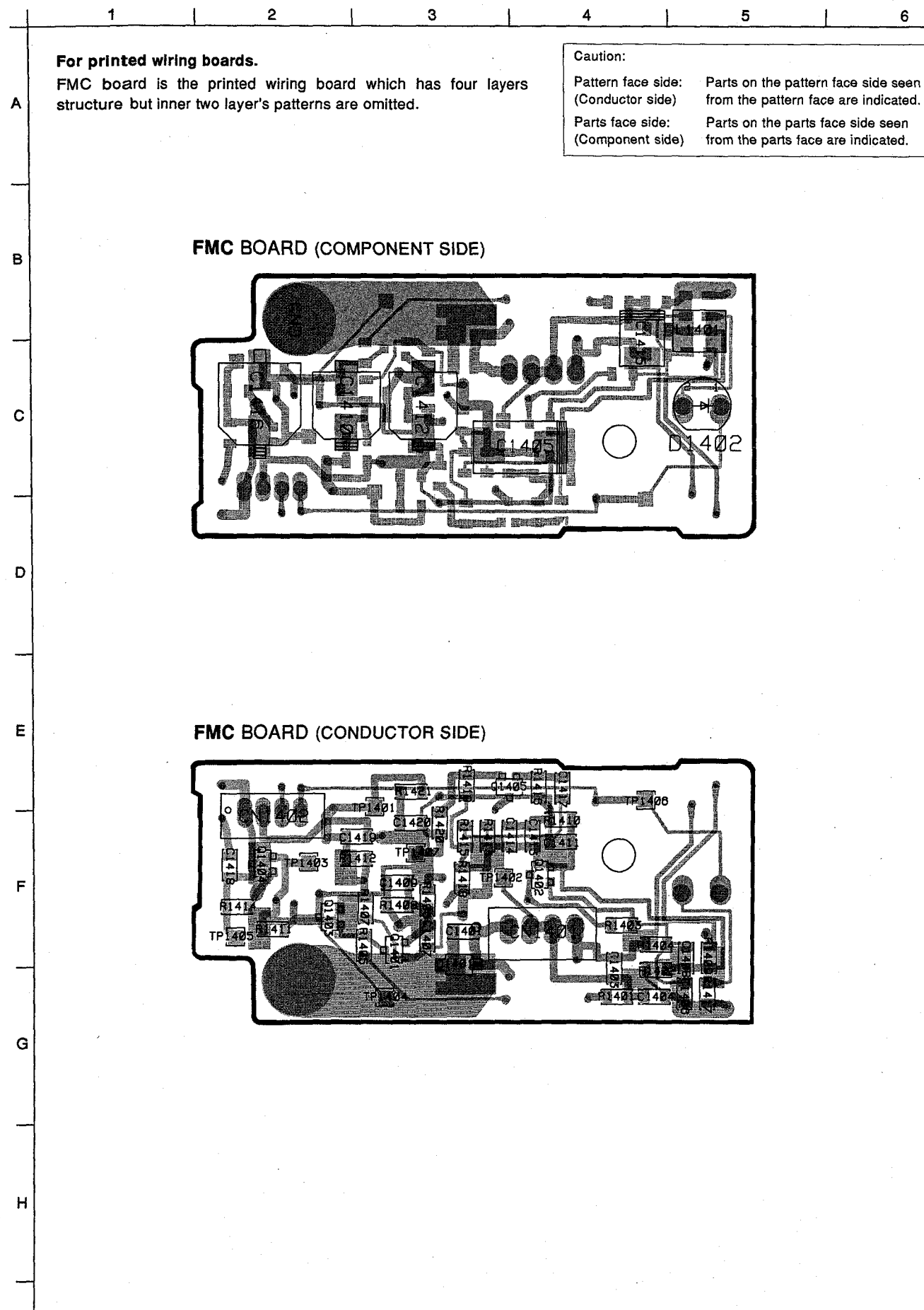
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MA728-TX



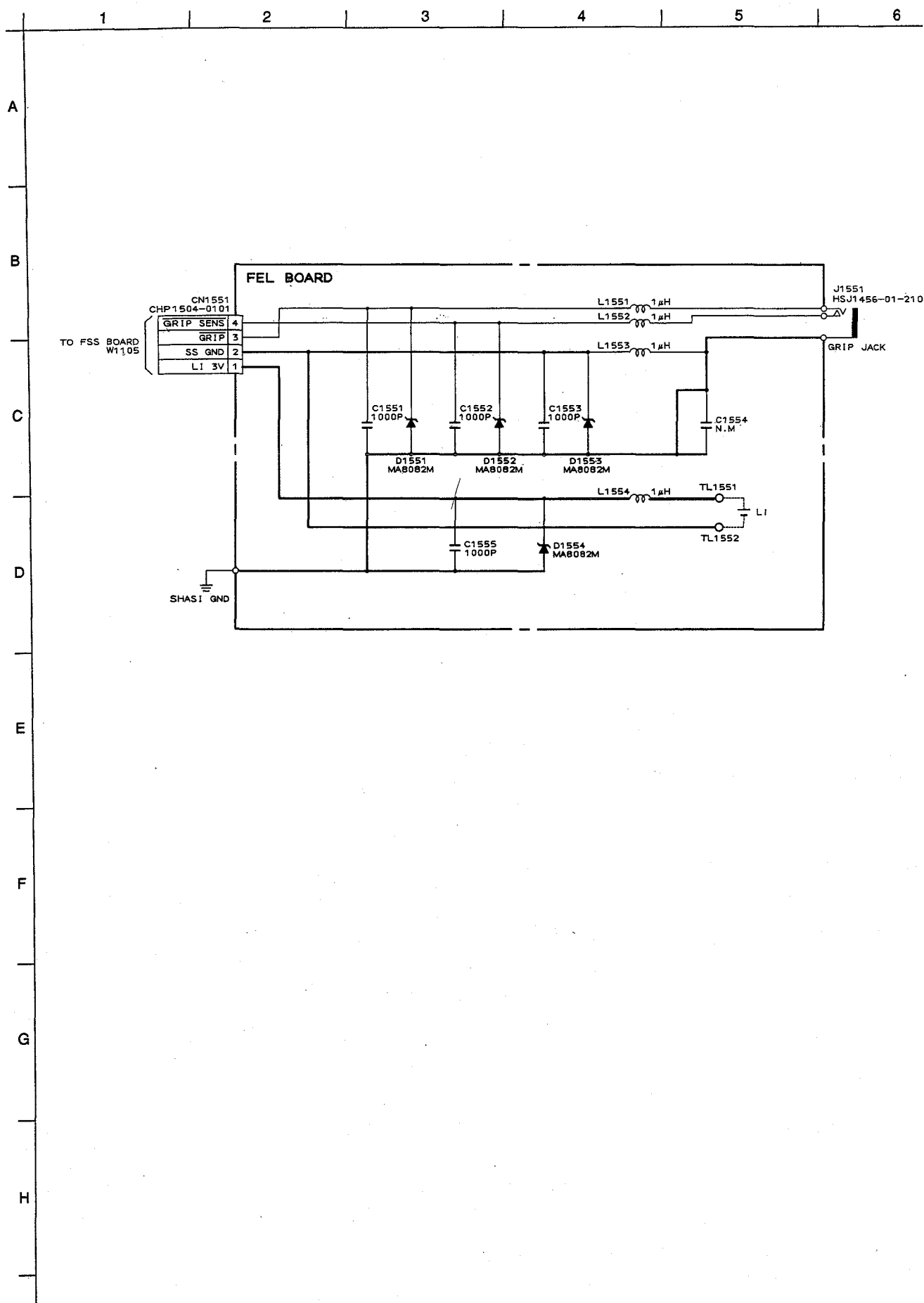
[FMC BOARD COMPONENT LOCATIONS]



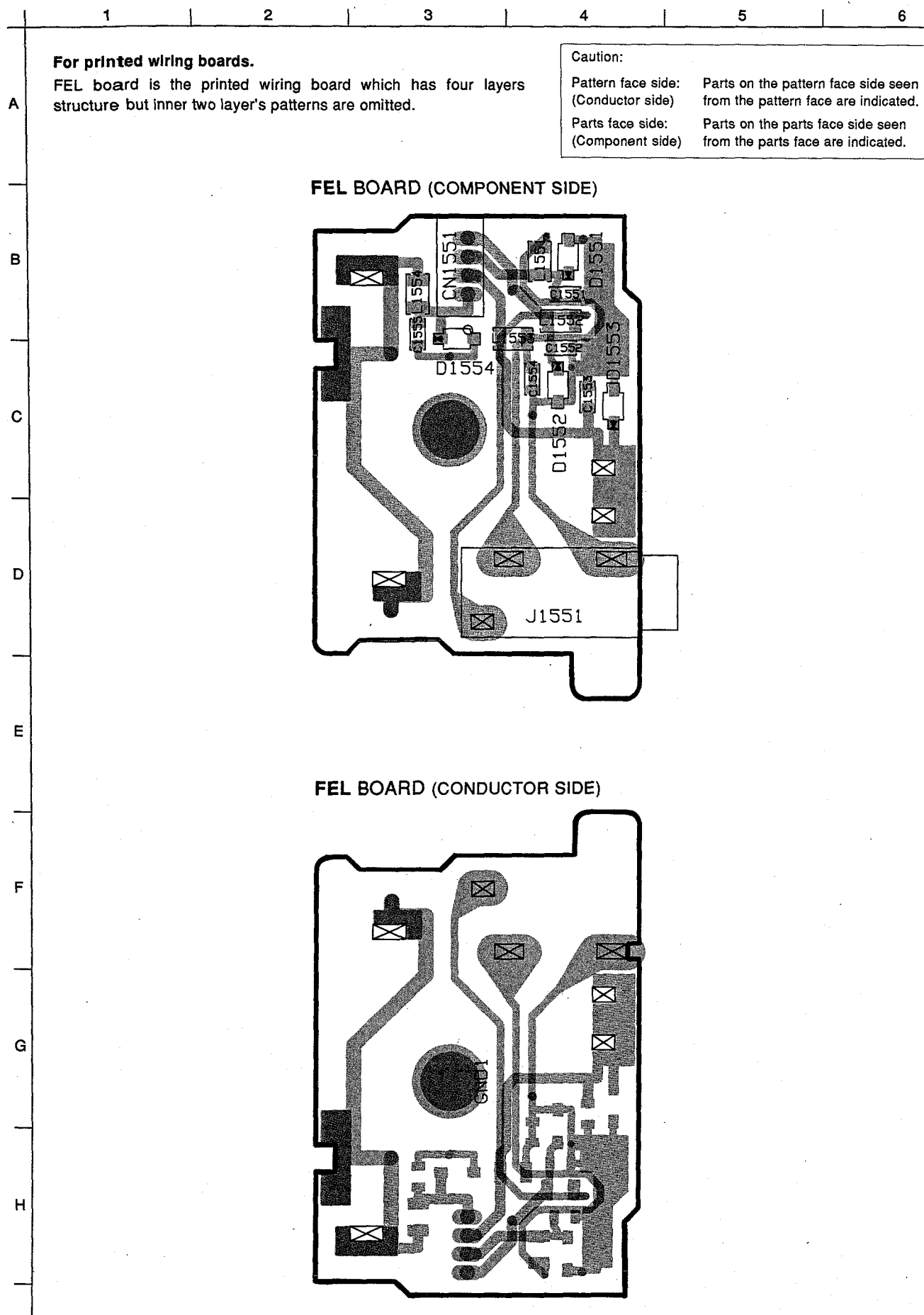
2 Schematic Diagrams

FF120SW SCHEMATICS

2-12. EARPHONE SCHEMATIC DIAGRAM (FEL BOARD)



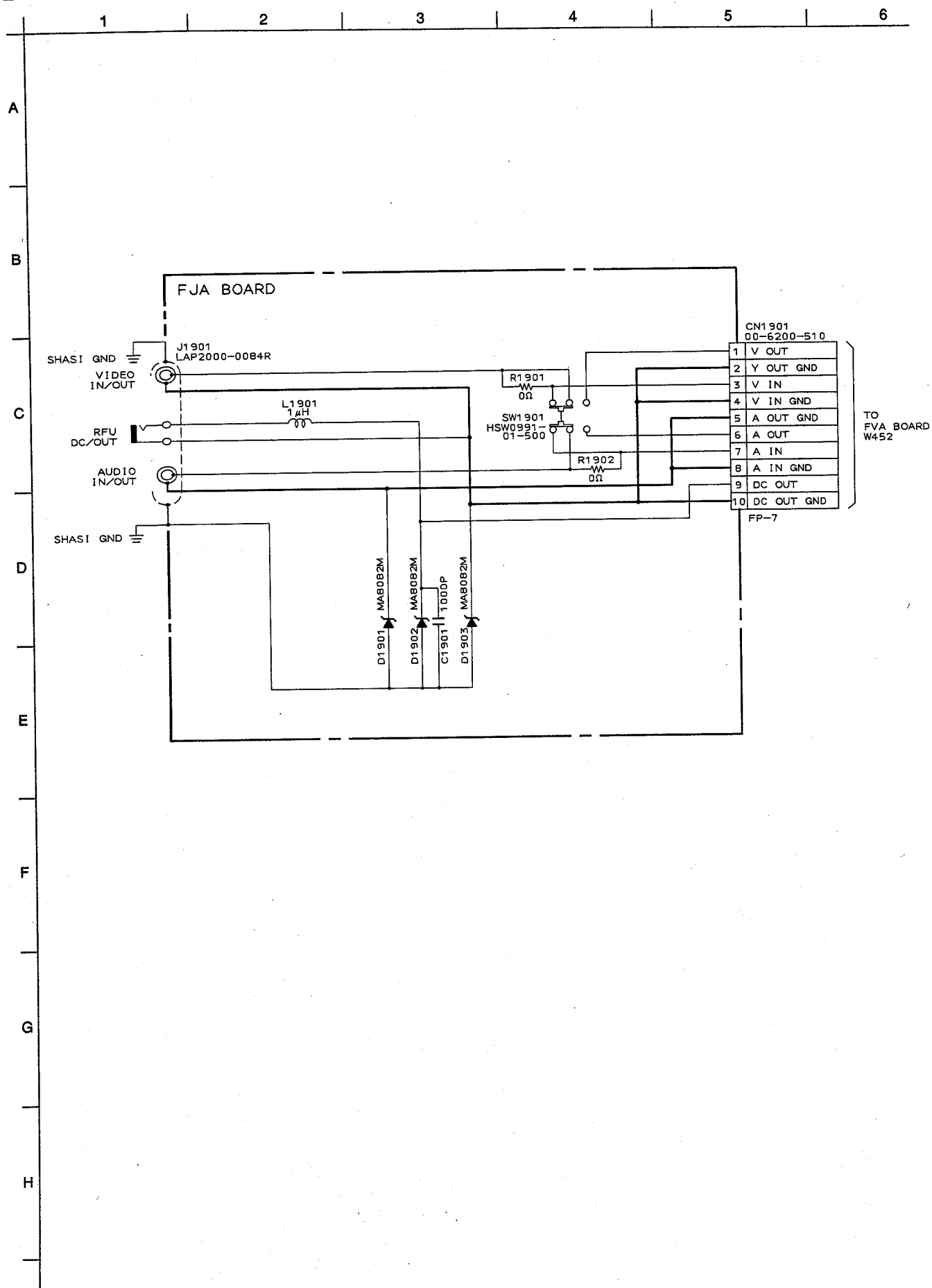
[FEL BOARD COMPONENT LOCATIONS]



2 Schematic Diagrams

FF120SW SCHEMATICS

2-13. JACK SCHEMATIC DIAGRAM (FJA BOARD)





FUJIX-8
VIDEO
SYSTEM

8

REPAIR MANUAL

AE/UK Models

FUJIX-8 CAMCORDER

FF120SW

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splasher and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK Δ OR DOTTED LINE WITH MARK Δ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH FUJI PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY FUJI PHOTO FILM CO., LTD.

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1. Specifications

System

Video recording system	Four rotary heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL color, CCIR standards
Usable tape	8 mm video format cassette
Tape speed	SP mode: Approx. 20.051mm/sec LP mode: Approx. 10.058mm/sec
Recording time	SP mode: 1 hour 30 minutes (P5-90) LP mode: 3 hours (P5-90)
Playback time	SP mode: 1 hour 30 minutes (P5-90) LP mode: 3 hours (P5-90)
Fast forward/rewind time	Approx. 8.5 minutes (P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (black and white)
Lens	Combined 12× power zoom lens f = 4.5 to 54 mm, F1.6 TTL autofocus system inner focus wide macro system
Shutter speed (Electrical shutter)	1/60 (normal), 1/100, 1/250, 1/1000, 1/2000, 1/4000 sec
Auto focus system	TTL
Minimum illumination	5 lux (F1.6)
Illumination range	5 lux – 100,000 lux
Recommended illumination	More than 100 lux (14 footcandles)
Aperture correction	Automatic

Input and output connector

Video output	Phono jack (1) 1 VP-P, 75 ohms unbalanced sync negative
Audio output	Phono jack (1) -7.5 dBs, (at output impedance 47 kohms) impedance less than 2.2 kohms
RFU DC OUT	Special mini-jack (1) 5 Vdc
GRIP jack	mini-mini-jack

General

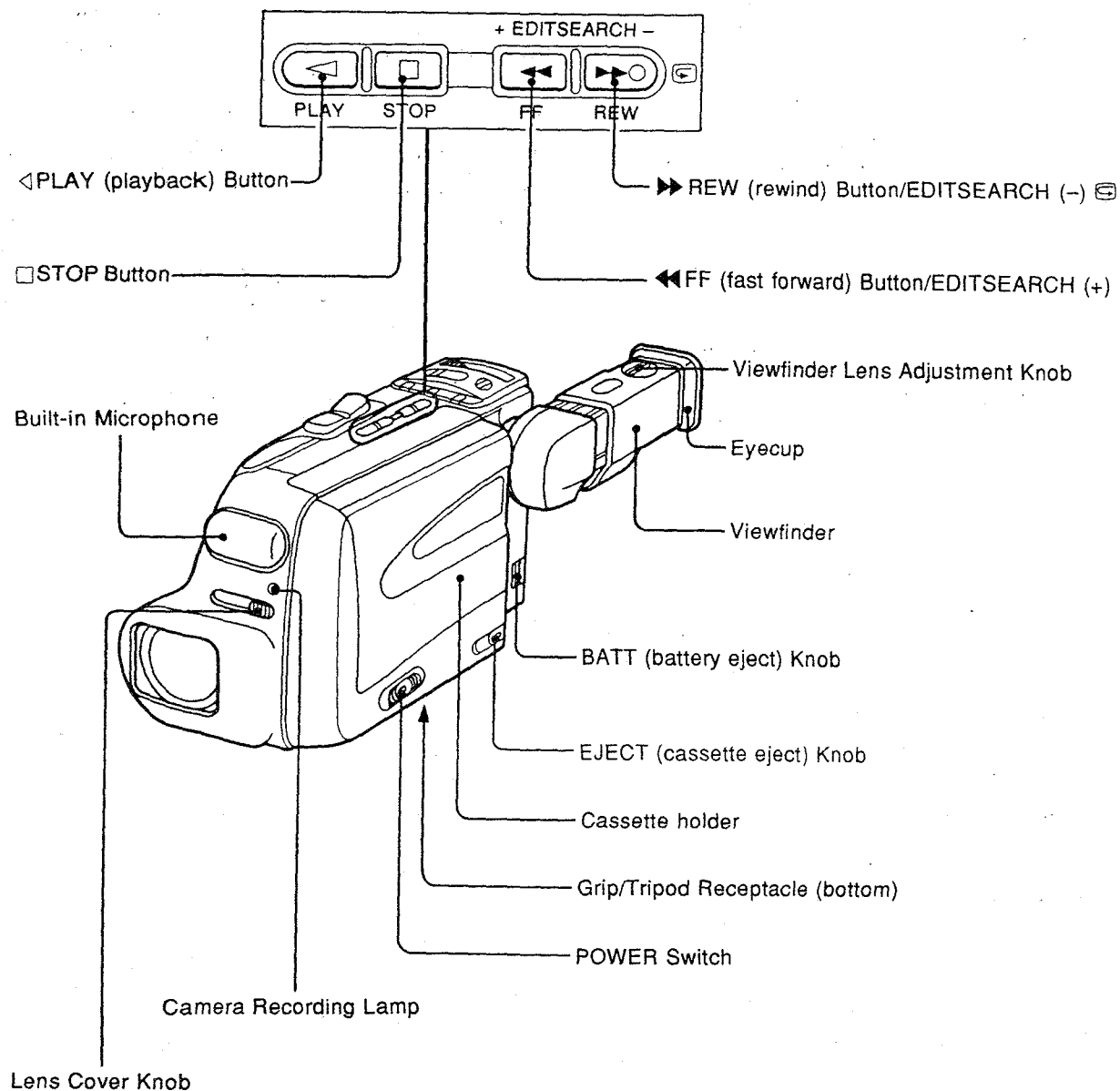
Power requirements	On battery mounting surface 6.0 V (battery pack) 7.5 V (AC power adaptor)
Power consumption	5.5 W (camera recording) including the viewfinder
Installation	Vertically, Horizontally
Operating temperature	0 °C to +40 °C
Storage temperature	-20 °C to +60 °C
Dimensions	Approx. 103 × 100 × 175 mm (w/h/d)
Weight	Approx. 760 g excluding the battery pack, lithium battery, cassette, shoulder strap and grip
Microphone	Electret condenser microphone
Supplied accessories	See Parts List page 4, 5.

2 Controls and Parts Locations

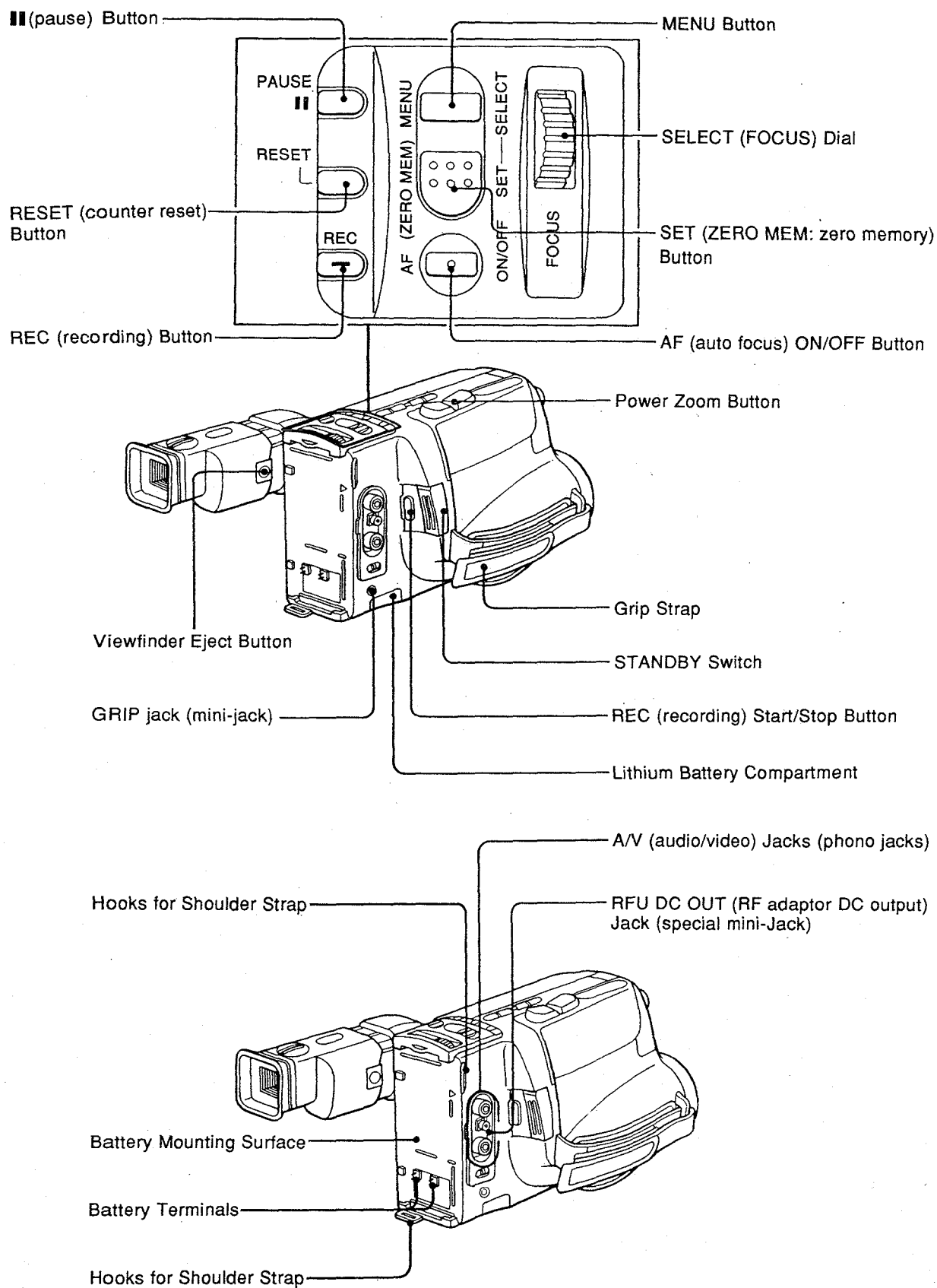
FF120SW REPAIR MANUAL

2. Controls and Parts Locations

2-1. External Views



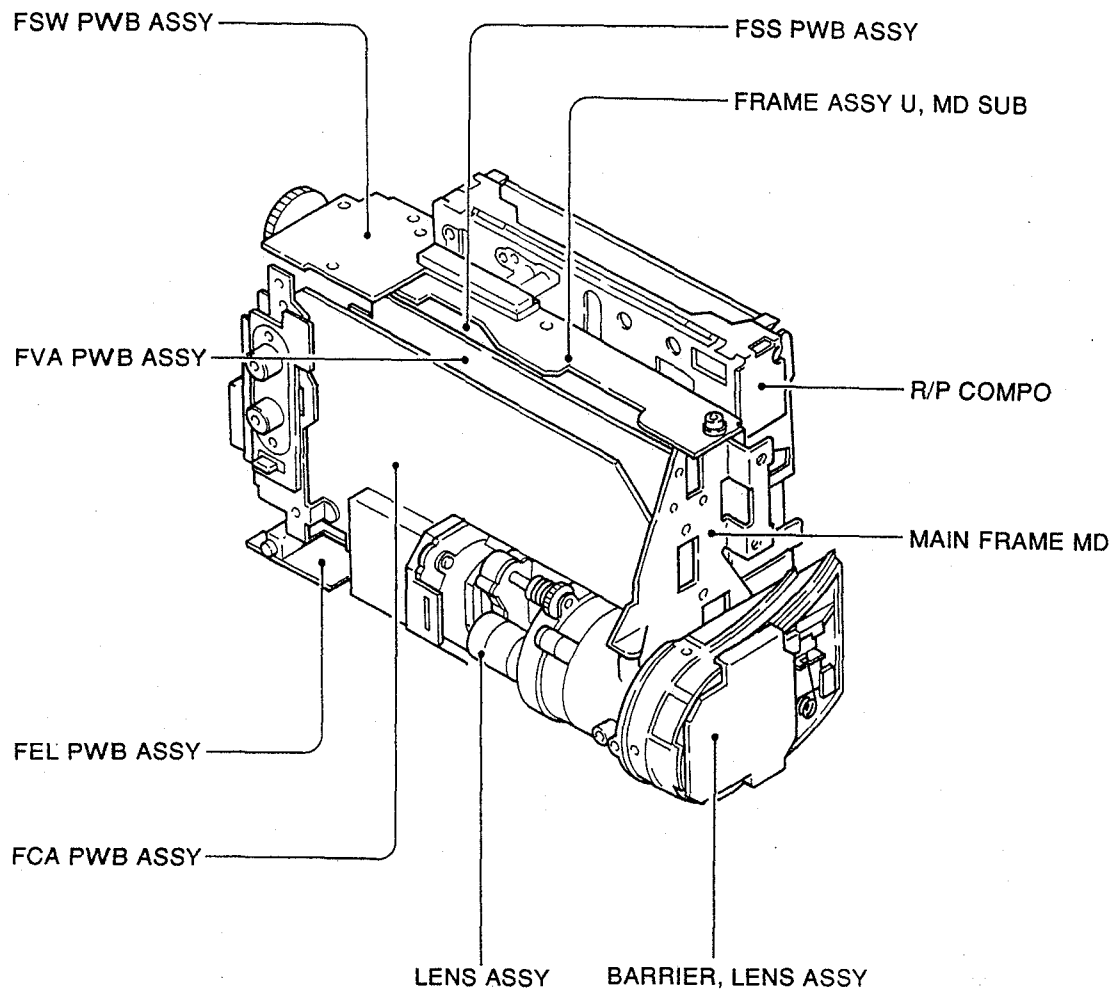
2 Controls and Parts Locations



2 Controls and Parts Locations

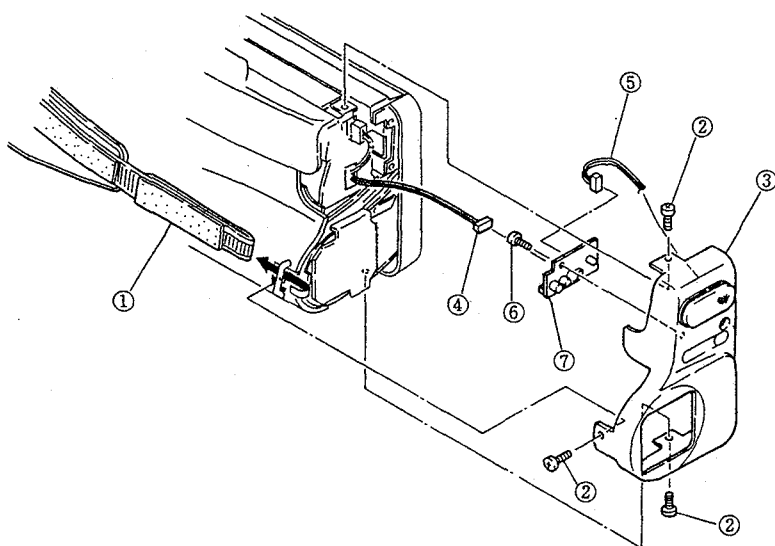
FF120SW REPAIR MANUAL

2-2. Internal Views



3. Disassembling

3-1. Disassembling the "CABINET (F) ASSY" and Removing the "FMC PWB ASSY"



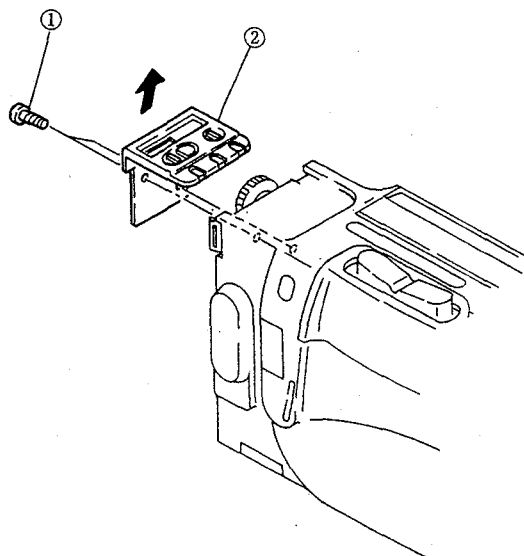
[Procedure]

- ① Detach the "BELT, STRAP (3)".
- ② Remove the 3 screws (M2 × 6, M2 × 3, M2 × 5).
- ③ Detach the "CABINET (F) ASSY".
- ④ Disconnect the connector CN1401.
- ⑤ Disconnect the connector CN1402.
- ⑥ Remove the screw (M2 × 6).
- ⑦ Remove the FMC PWB ASSY.

CAUTION:

Be careful not to pull on the wires when disconnecting the connectors. Doing so may sever them.
Be careful not to accidentally connect CN1401 to CN1402.

3-2. Disassembling the "CABINET U (U) ASSY"



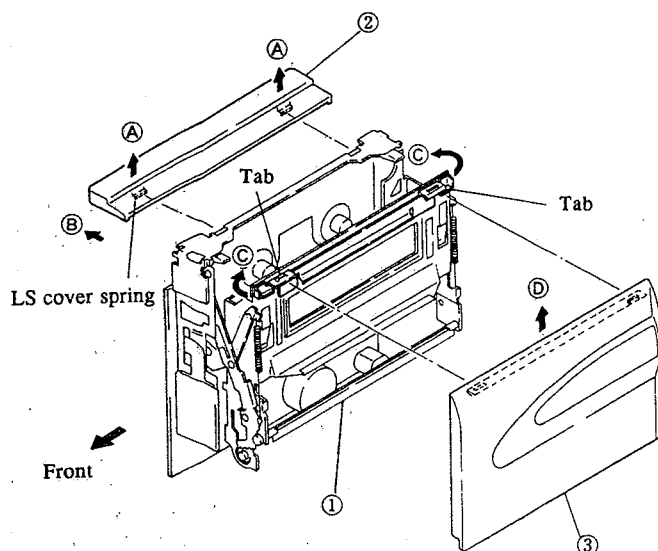
[Procedure]

- ① Remove the 2 screws (M2 × 3).
- ② Detach the "CABINET U (U) ASSY" by lifting it in the direction of the arrow.

3 Disassembling

FF120SW REPAIR MANUAL

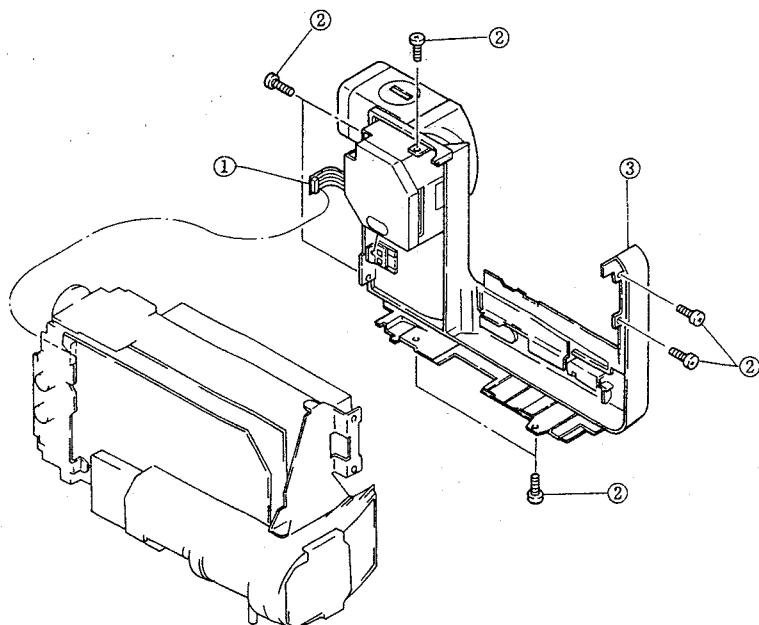
3-3. Disassembling the "COVER ASSY, LS" and the "COVER, ASSY, CASSETTE"



[Procedure]

- ① Put the cassette holder in the EJECT position.
- ② Lift the LS cover springs in the direction of arrow A and slide the cover in the direction of arrow B to detach.
- ③ Push the tabs in the direction of arrow C and remove the "COVER, ASSY, CASSETTE" by sliding it in the direction of arrow D.

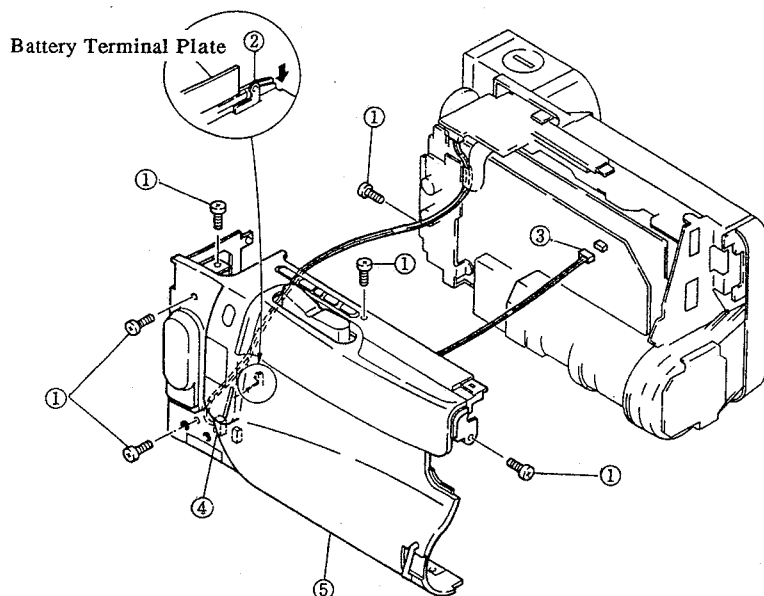
3-4. Disassembling the "CABINET, R (U), ASSY (U)"



[Procedure]

- ① Disconnect the connector CN453.
- ② Remove the 7 screws (M2 × 3, M2 × 5).
- ③ Detach the "CABINET, R (U), ASSY (U)".

3-5. Disassembling the "CABINET L (U) ASSY"



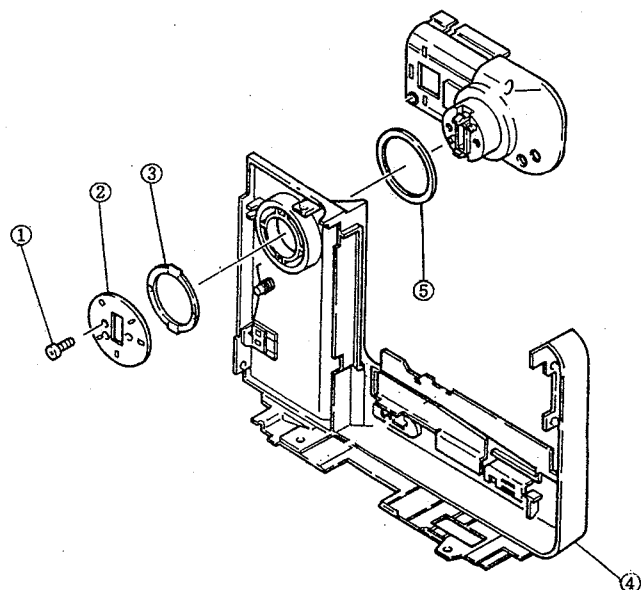
[Procedure]

- ① Remove the 6 screws (M2 × 3, M2 × 8).
- ② Push "METAL FITTINGS, STRAP" in the direction of the arrow and remove the "BATT TERMINAL ASSY".
- ③ Disconnect the connector CN52.
- ④ Disconnect the connector CN1601.
- ⑤ Detach the "CABINET L (U) ASSY".

CAUTION:

Be careful not to pull on the wires when disconnecting the connectors. Doing so may sever them.

3-6. Disassembling the Finder

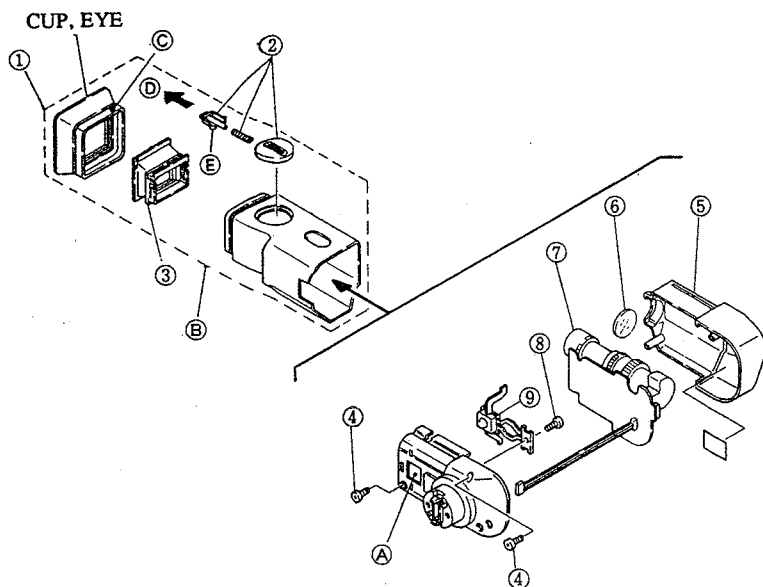


[Procedure]

- ① Remove the 2 screws (M2 × 6).
- ② Remove the housing plate.
- ③ Remove the housing spring.
- ④ Detach the "CABINET, R (U), ASSY".
- ⑤ Remove the washer.

3 Disassembling

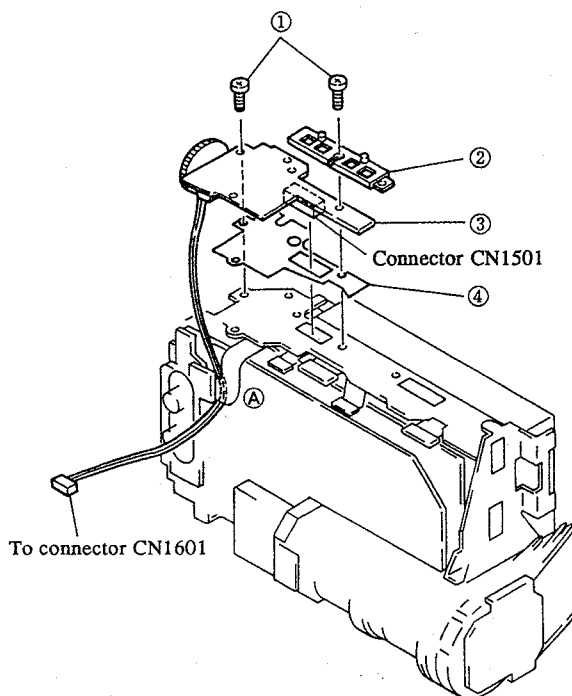
3-7. Disassembling the Finder Block



[Procedure]

- ① Remove (B) while pressing on (A), and detach the "CUP, EYE" by rotating (C).
- ② Remove the lock pin (E) with tweezers in direction (D), and detach the "KNOB, LENS ADJUSTER", "LOCK PIN, LENS ADJUSTER", "SPRING, LENS ADJUSTER".
- ③ Remove the "FINDER LENS FRAME".
- ④ Remove the 2 screws (M2 × 8).
- ⑤ Remove the "FINDER CABINET RIGHT".
- ⑥ Remove the "FILTER, PROTECT".
- ⑦ Remove the "EVF, ASSY".
- ⑧ Remove the screw (M2 × 6).
- ⑨ Remove the "BUTTON, LOCK".

3-8. Removing the "FSW PWB ASSY"



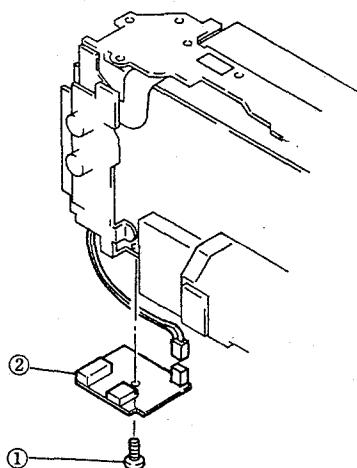
[Procedure]

- ① Remove the 2 screws (M2 × 3, M2 × 4).
- ② Remove the "COVER, FSW".
- ③ Disconnect the connector CN1501 and remove the "FSW PWB ASSY".
- ④ Remove the "SHEET, INSULATOR, FSW".

CAUTION:

Make sure the cable passes under the flexible PWB (A) when assembling.

3-9. Removing the "FEL PWB ASSY"



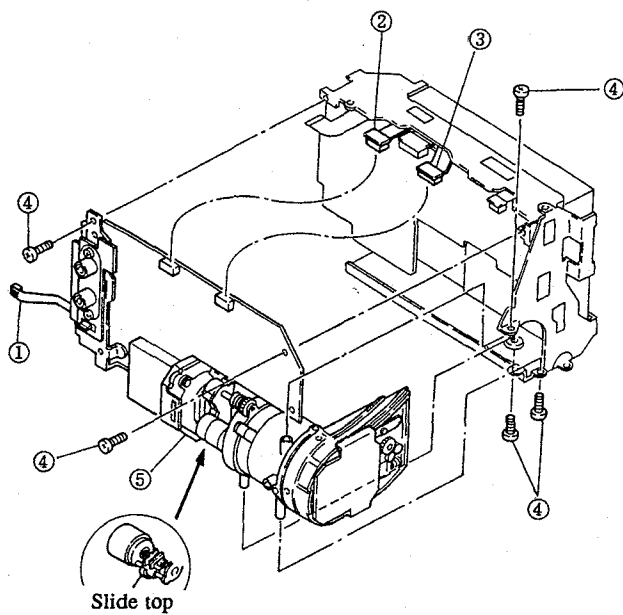
[Procedure]

- ① Remove the screw (M2 × 3).
- ② Disconnect the connector CN1551 and remove the "FEL PWB ASSY".

CAUTION:

Be careful not to pull on the wires when disconnecting the connectors. Doing so may sever them.

3-10. Disassembling the Camera Block



[Procedure]

- ① Disconnect the connector CN1.
- ② Disconnect the connector CN221.
- ③ Disconnect the connector CN372.
- ④ Remove the 5 screws (M2 × 6, M2 × 3).
- ⑤ Detach the camera block.

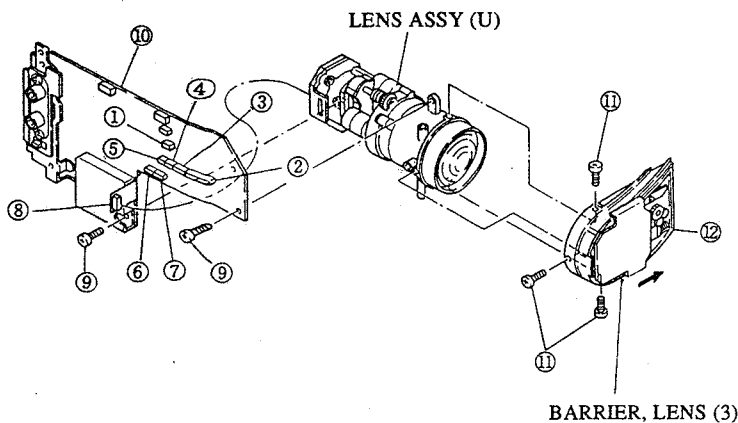
CAUTION:

Be careful not to accidentally hit the "MAIN FRAME MD" with the slide top of the lens assembly when removing the camera. The AF calibration will be affected.

3 Disassembling

FF120SW REPAIR MANUAL

3-11. Disassembling the "FCA PWB ASSY", the "LENS ASSY (U)" and the "BARRIER, LENS, ASSY (U)"



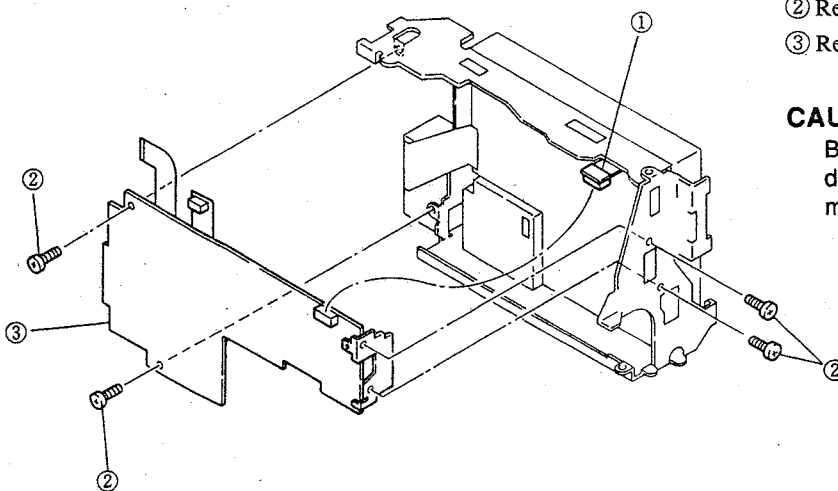
[Procedure]

- ① through ⑧ Disconnect the connector CN60, CN53, CN54, CN56, CN57, CN58, CN59, and CN1 respectively.
- ⑨ Remove the 2 screws (M2 × 3, M2 × 6).
- ⑩ Remove the "FCA PWB ASSY".
- ⑪ Remove the 3 screws (M1.7 × 5).
- ⑫ Move the "BARRIER, LENS (3)" in the direction of the arrow and detach the "BARRIER, LENS, ASSY (U)" from the "LENS ASSY (U)".

CAUTION:

Be careful not to pull on the wires when disconnecting the connectors. Doing so may sever them.

3-12. Removing the "FVA PWB ASSY"



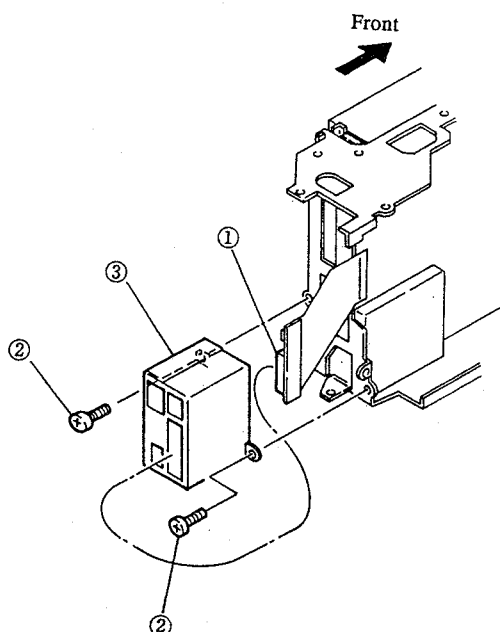
[Procedure]

- ① Disconnect the connector CN454.
- ② Remove the 4 screws (M2 × 3).
- ③ Remove the "FVA PWB ASSY".

CAUTION:

Be careful not to pull on the wires when disconnecting the connectors. Doing so may sever them.

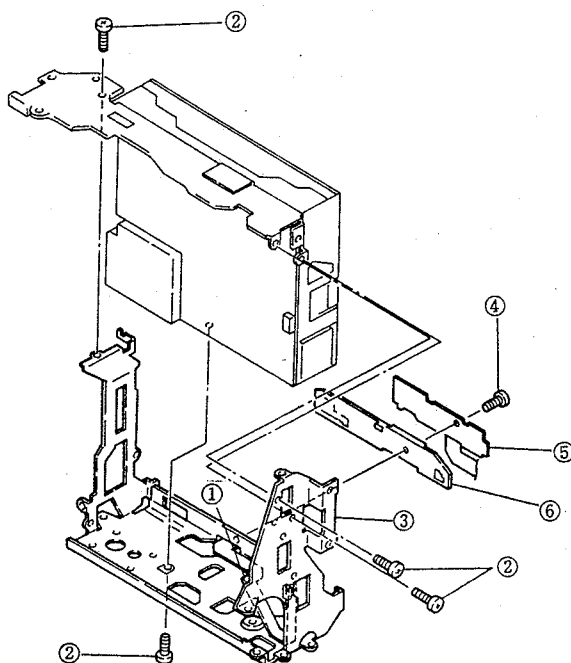
3-13. Removing the "DC/DC CONVERTER"



[Procedure]

- ① Disconnect the connector CN2.
- ② Remove the 2 screws (M2 × 3).
- ③ Remove the "DC/DC CONVERTER".

3-14. Disassembling the "MAIN FRAME MD" and Removing the "FEJ PWB ASSY"

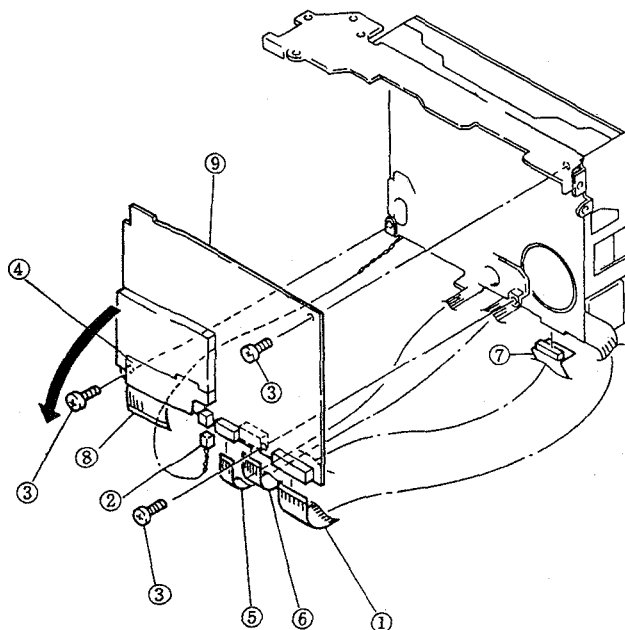


[Procedure]

- ① Disconnect the connector CN1106.
- ② Remove the 4 screws (M2 × 3).
- ③ Detach the "MAIN FRAME MD".
- ④ Remove the screw.
- ⑤ Remove the "FEJ PWB ASSY".
- ⑥ Remove the "HOLDER FEJ".

3 Disassembling

3-15. Removing the "FSS PWB ASSY"



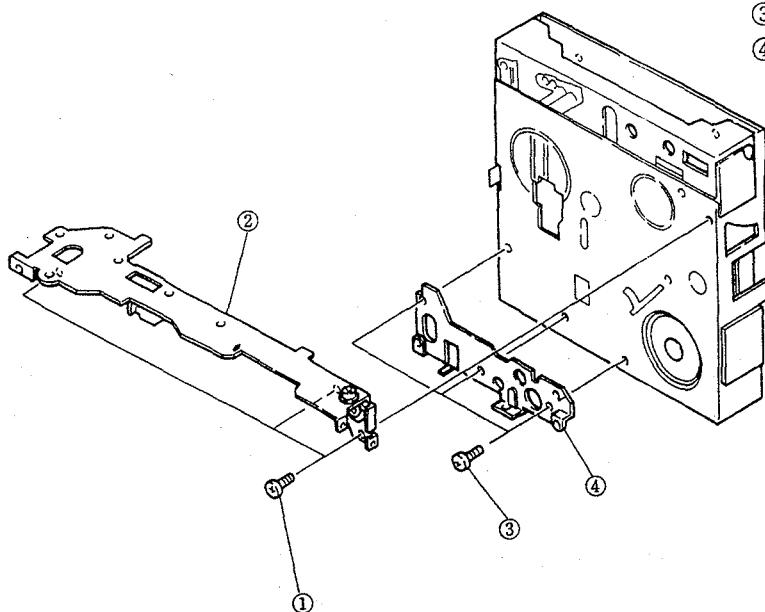
[Procedure]

- ① Disconnect the connector CN1102.
- ② Disconnect the connector CN1105.
- ③ Remove the 3 screws (M2 × 3).
- ④ Detach the "R/P SHIELD CASE C".
- ⑤ Push down the "FSS PWB ASSY" in the direction of the arrow and disconnect CN1104.
- ⑥ Disconnect the connector CN1103.
- ⑦ Disconnect the connector FP-1.
- ⑧ Disconnect the connector CN851.
- ⑨ Remove the "FSS PWB ASSY".

CAUTION:

Be careful not to pull on the wires when disconnecting the connectors. Doing so may sever them.

3-16. Disassembling the "FRAME ASSY (U), MD SUB" and Removing the "PLATE, MOUNT MD (U)"



[Procedure]

- ① Remove the 3 screws (M1.4 × 2).
- ② Detach the "FRAME ASSY (U), MD SUB".
- ③ Remove the 3 screws (M1.4 × 2).
- ④ Detach the "PLATE, MOUNT MD (U)".

4. Camera Block Adjustments

4-1. Pre-adjustment Preparations

4-1-1. Necessary equipments and jigs

- Oscilloscope (over 20 MHz band, incorporates delay function and 10:1 probe)
- Regulated power source (more than 2A dc)
- Vectorscope
- Digital voltmeter
- Color monitor
- Stopwatch
- Torque driver
- Screwdriver

Ref.No.	Part name	Spec.	Use	Part No.	Supply
J-1	ND filter 0.3	50 × 50 mm	Maximum gain adjustment, MINDET gain adjustment	ZJ00003-100	
	ND filter 13	50 × 50 mm	Iris IN/OUT adjustment, flange back adjustment	ZJ00004-100	
	ND filter 40	50 × 50 mm	Iris IN/OUT adjustment, flange back adjustment	ZJ00005-100	
	LB140	50 × 50 mm	AWB adjustment	ZJ00006-100	
J-2	Close-up lens	SLB-50-600P	Flange back adjustment	ZJ00007-100	
J-3	Lens holder	S-40-50	Flange back adjustment	ZJ00008-100	
	Stand	S-32-130	Flange back adjustment	ZJ00009-100	
	Base plate	S-13-3	Flange back adjustment	ZJ00010-100	
J-4	Color bar chart			ZJ00011-100	
J-5	AF chart		DET gain adjustment	ZJ00012-100	
J-6	Siemens Star		Flange back adjustment	ZJ00013-100	
J-7	In-megacycle chart		SHP level adjustment	ZJ00014-100	
J-8	Pattern box	PTB-450 (3200°K)		ZJ00015-100	
J-9	V/DR JIG		Connection cable included	ZJ00001-100	
J-10	Adjustment remote controller*1	RM-95B	Connection cable included	J6082-053-B	
J-11	Camera holder			ZJ00016-100	

*1 Microcomputer IC in the Adjustment remote controller except for μ PD7503G-C56-12 (8-759-148-35) does not allow the page selecting. Replace the microcomputer in such case.

Table 4-1

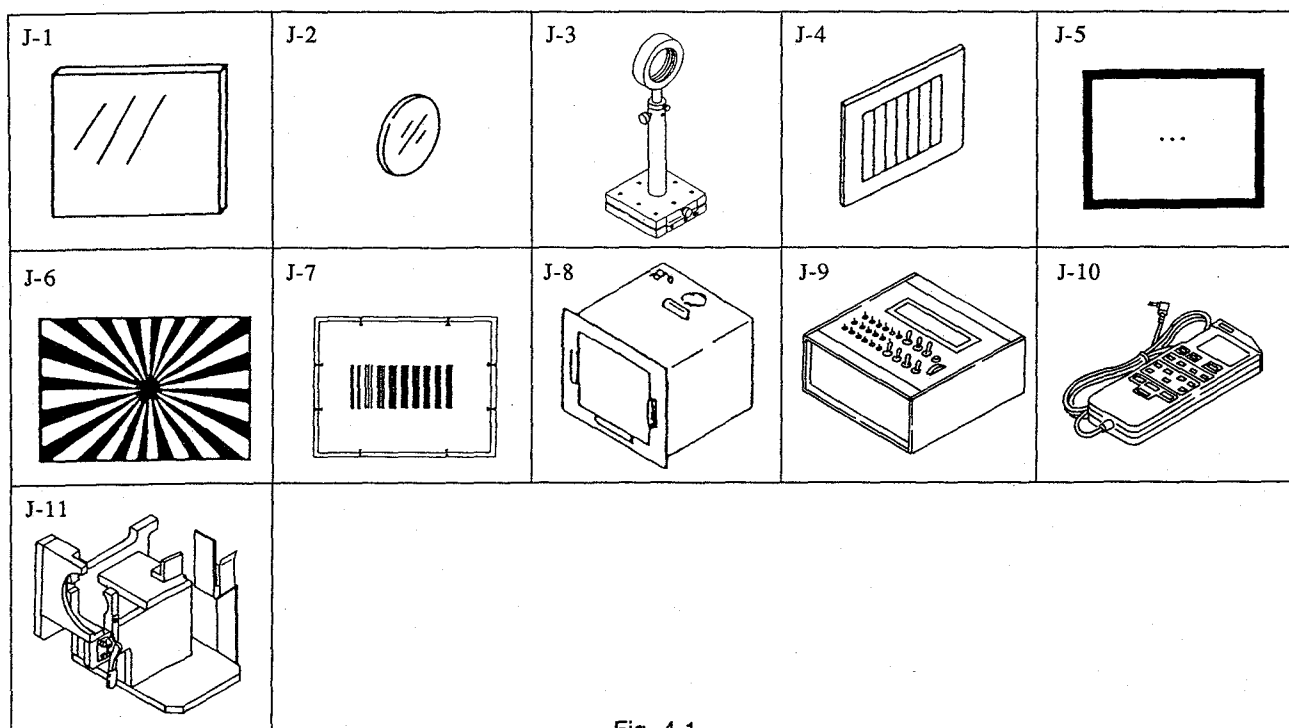


Fig. 4-1

4 Camera Block Adjustments

FF120SW REPAIR MANUAL

4-1-2. Preparations

Note: Refer to "3. Disassembling" for details on the removals of the camera block and "DC/DC CONVERTER".

- 1) Setup the adjustment instruments as shown in Fig. 4-2 and Fig. 4-3.

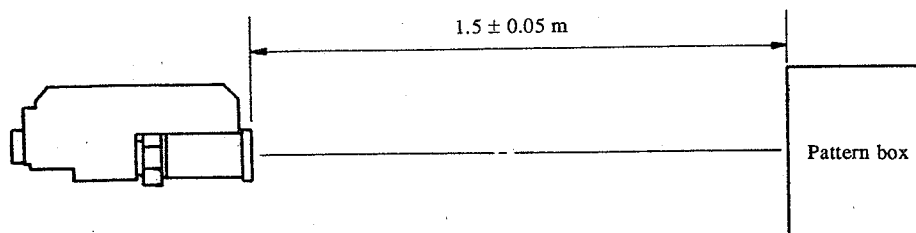


Fig. 4-2

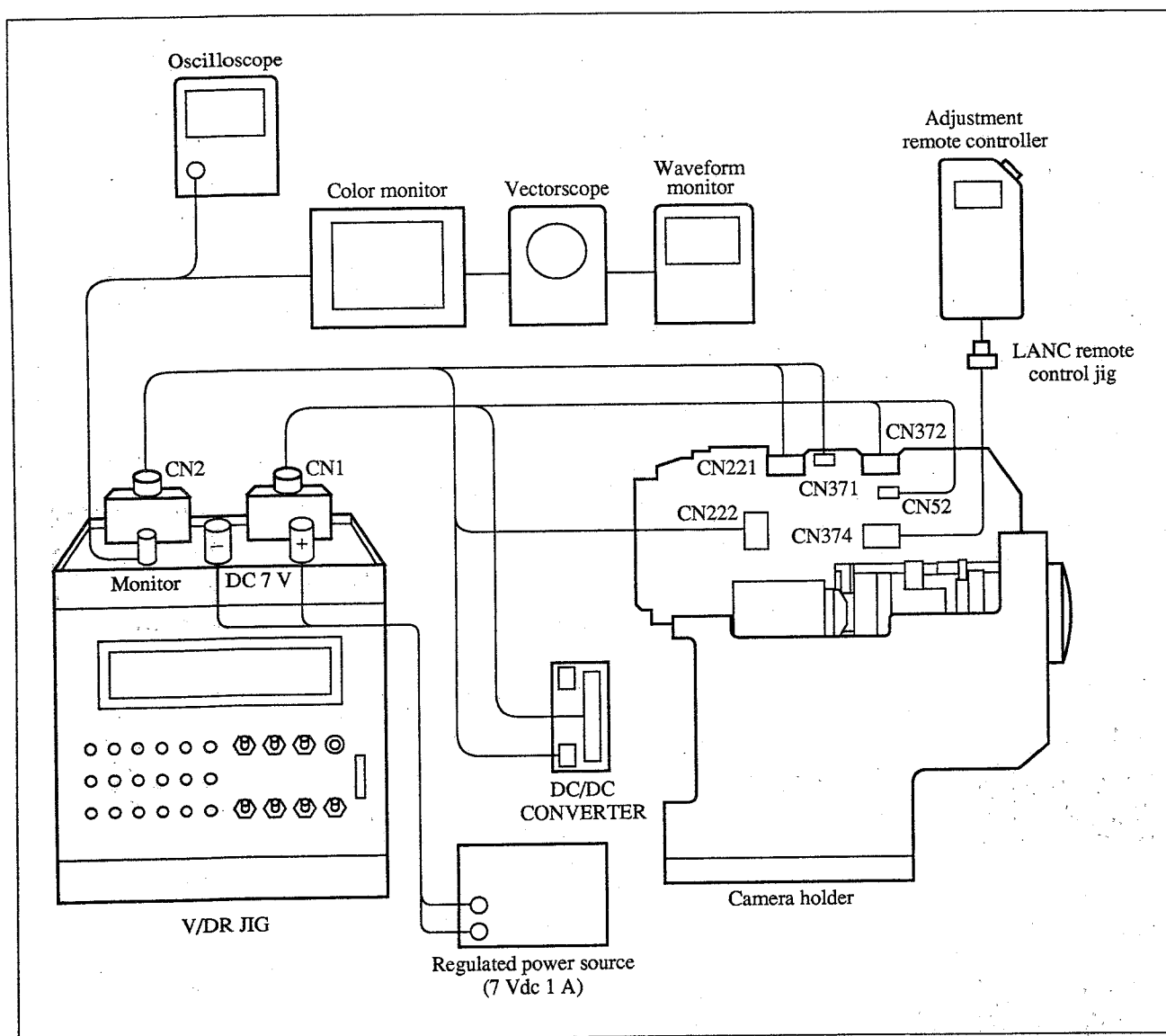


Fig. 4-3

4-1-3. Subjects

1) Color bar chart (standard picture frame)

When using the color bar chart, adjust the picture frame as illustrated in Fig. 4-4.

2) All white pattern

Remove the color bar chart (standard picture frame) from the pattern box and set the zoom so that the white pattern covers the screen completely.

3) In-megacycle chart

Place the monitor in underscan and adjust the zoom so that the (►) marks on the chart are lined up with the right and left edges of the monitor in the horizontal direction.

4) AF chart

Remove the color bar chart (standard picture frame) from the pattern box and insert the AF chart.

5) Siemens star

Adjust the direction of the camera so that the center of the Siemens star is lined up with the center of the monitor screen.

Color bar chart standard picture frame

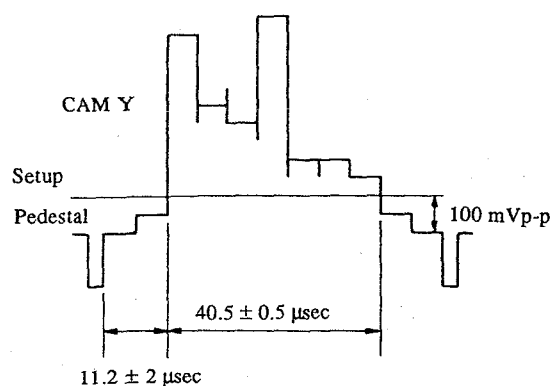


Fig. a (Video output terminal output waveform)

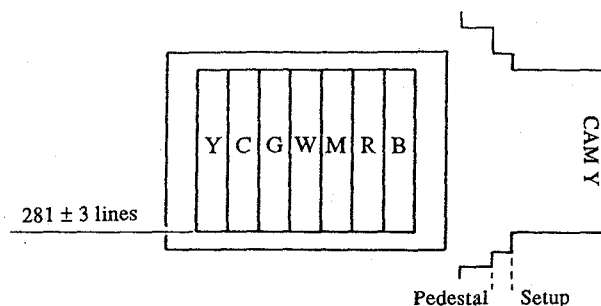


Fig. b (Picture on monitor TV)

Adjust the zooming and direction of the camera to obtain the output waveform shown in figure a and the monitor TV picture shown in Fig. b.

Standard value $\pm 5\%$ at iris output

Fig. 4-4 Color bar chart standard picture frame

4 Camera Block Adjustments

FF120SW REPAIR MANUAL

4-1-4. VIDEO OUTPUT/DATA READING JIG (V/DR JIG)

The VIDEO OUTPUT/DATA READING JIG (V/DR JIG) is a test equipment for repairing a Fuji Video Camcorder. To support adjusting and repairing a Fuji Video Camcorder, the V/DR JIG shall be connected with "FCA PWB ASSY" to

supply the DC +7 voltage, also it proceeds the image signal that is created in the "FCA PWB ASSY" unit, and sends to the monitor TV.

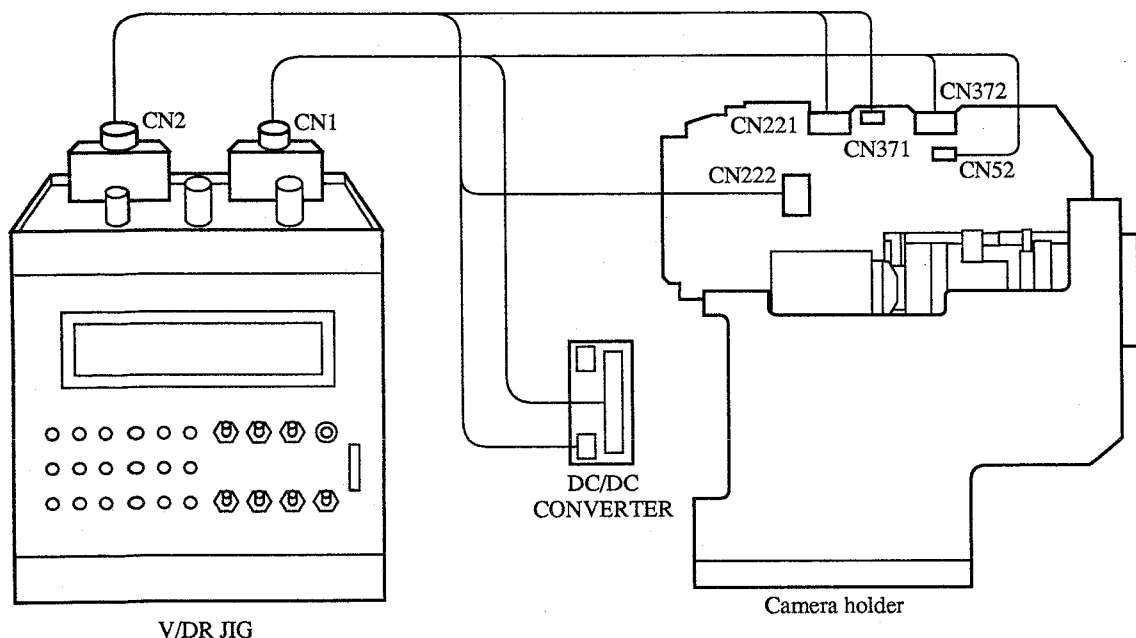


Fig. 4-5

1) Picture confirmation

Connect the V/DR JIG connection cable to the "FVC PWB ASSY" of the 8 mm Camcorder and connect the monitor terminal of the V/DR JIG and the monitor TV with a cable. Turn on the power of the V/DR JIG, regulated power source, and the monitor TV, then confirm that the picture from the "FVC PWB ASSY" of the 8 mm Camcorder appears on the monitor screen.

2) Switch operation confirmation

Set the MIX switch to "ON" and the FOCUS/CHARA switch to "FOCUS" position. Set the CAM-ADJ switch to upper position and press the SYSTEM RESET switch upward, the white frame appears on the monitor screen. MIX and FOCUS/CHARA switches control the white frame. Confirm that the white frame disappears when these switches are set to "ON" and "FOCUS" respectively. However, if the CAM-ADJ switch is set on the down position the white frame does not appear on the monitor screen.

The CAM-ADJ switch controls the focus mode. Confirm that the focus mode changes to the manual focus when the switch is set to down position, and the focus changes by turning the M-FOCUS VR knob.

In the auto focus mode (the CAM-ADJ switch is at upper position and the SYSTEM RESET switch is pushed up), the focus does not change by the M-FOCUS VR knob.

Confirm that the camera zoom moves to "TELE" position when the TELE switch is "ON", and moves to "WIDE" position reversely when the WIDE switch is "ON".

3) LCD indication confirmation

The LCD indication of the V/DR JIG shall be controlled by the external remote control switch. For that purpose, the remote control indication must be set to "1 : 01 : 6F".

Set the left value to "1" by the EDIT SEARCH (+) button of the remote controller. Then set the right value to "6F" by the FF button, and finally set the center value to "01" by the PLAY button.

4 Camera Block Adjustments

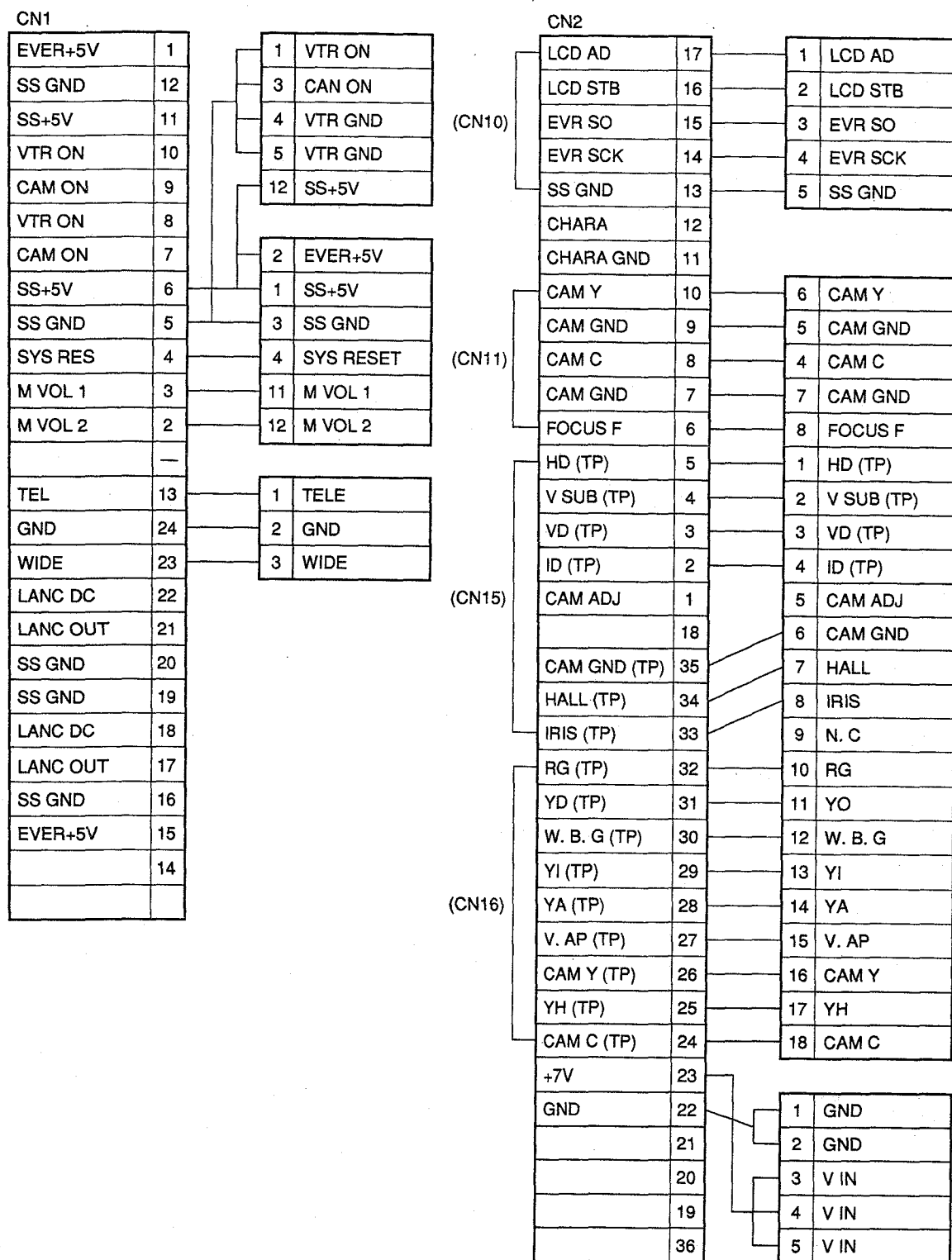


Fig. 4-6 Connections of the V/DR JIG

4 Camera Block Adjustments

FF120SW REPAIR MANUAL

4-1-5. Adjustment remote controller

An EVR (Electronic Variable Resistor) is used as the adjustment element for the camera block, replacing the conventional semi-fixed resistor. The EVR is controlled by the EVR/AWB microprocessor. This microprocessor reads the data written in the nonvolatile memory of the microprocessor and sends it to the EVR. The EVR D-A converts this data and creates the adjustment voltage.

Thus, it is necessary to change the adjustment data contained in the nonvolatile memory when adjusting the camera block, and the adjustment memory is used for this purpose.

The adjustment remote controller performs bidirectional communications with the camera block microprocessor using the remote control signal lines (LANC). Adjustment page addresses and adjustment data increment/decrement commands are sent to the camera block microprocessor from the adjustment remote controller. Adjustment addresses and adjustment data are sent from the camera block microprocessor to the adjustment remote controller.

4-1-6. SENSER LANC

SENSER LANC is the LANC format to adjust the EVR (Electronic Variable resistor) of Video 8 Handycam and to perform tests by using the LANC (control L). This word stands for the same as the SERVICE LANC formerly used, however, the unified word "SENSER LANC" will be used with this substantial functions.

4-1-7. How to use RM-95 JIG (Remote control for adjustment)

RM-95 jig is used to operate the SENSER LANC. HOLD switch of this jig is remodelled for service to get the SENSER LANC mode. Replacing microcomputer in RM-95 is required for the old-model RM-95 jig, which has no page display function. (See Table 4-4, Fig. 4-11, Fig. 4-12)

Old model	μ PD7503G-A71-12 μ PD7503G-C23-12	8-759-142-56 8-759-146-77	Page is not displayed (Replacing microcomputer is required)
New model	μ PD7503G-C56-12	8-759-148-35	Page is displayed

Table 4-2

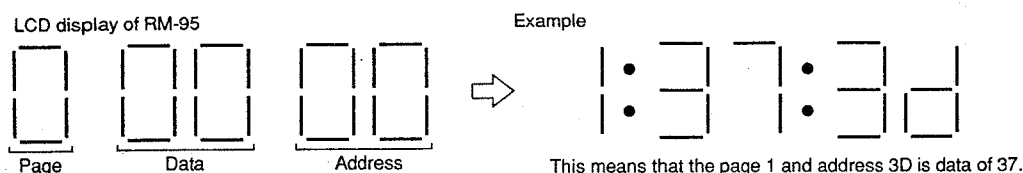
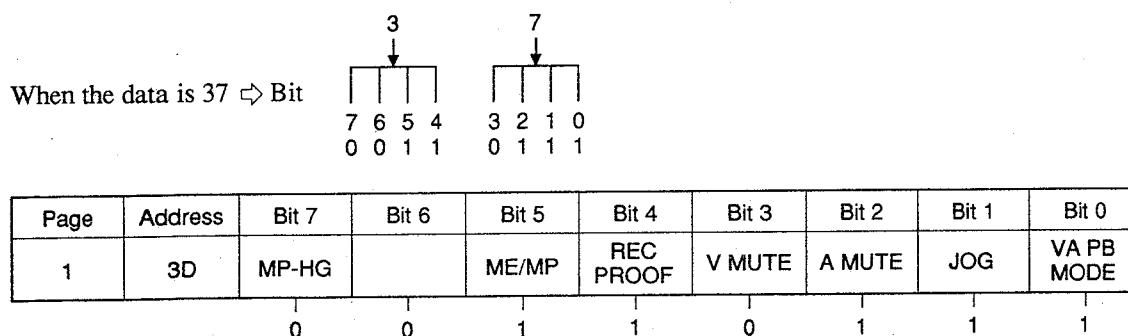


Fig. 4-7

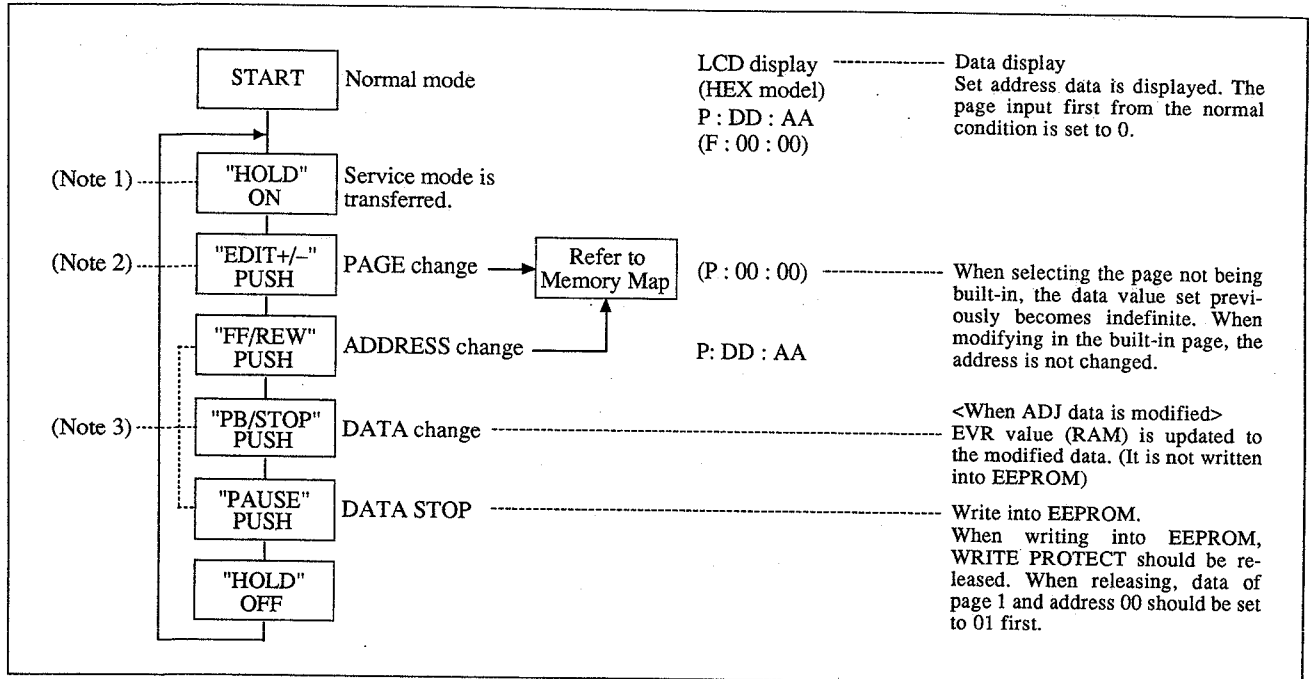


The data in the above list means as follows:

ME SW ON JOG ON
 REC PROOF SW ON VA PB MODE ON
 Audio mute ON

Fig. 4-8

4-1-8. Transfer method of the service mode with RM-95



Command name	Command function	Function Button with RM-95
Page Up	Page+1	Edit Search+
Page Down	Page-1	Edit Search-
Direct Page Set	Set to direct page	Event Clear
Address Up	Address+1	Fast Forward
Address Down	Address-1	Rewind
Data Up	Data+1	Play Back
Data Down	Data-1	Stop
Store	Write data into EEPROM, RAM	Pause

Table 4-3

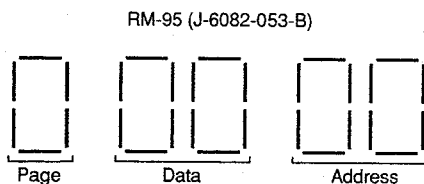


Fig. 4-9

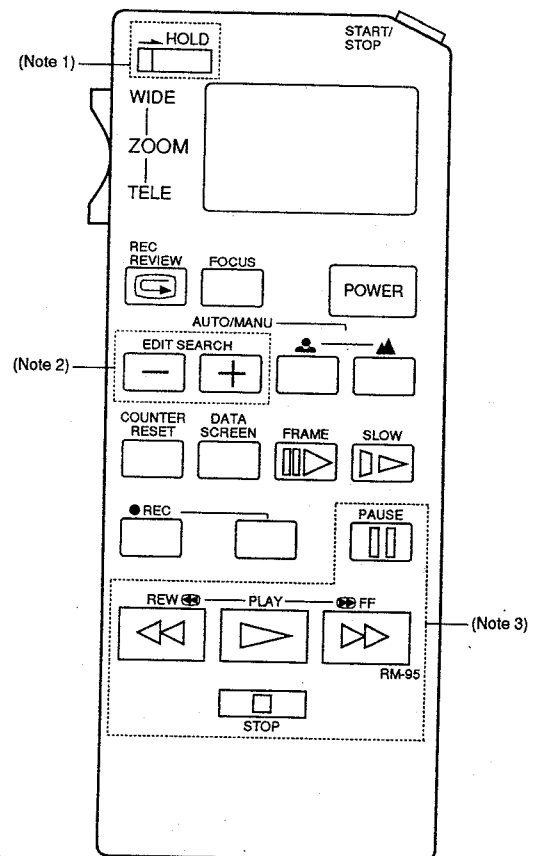


Fig. 4-10 RM-95 (J-6082-053-B)

4 Camera Block Adjustments

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4-1-9. Precautions on use of the adjustment remote controller

It is possible to accidentally erase correct adjustment data through an error in the operation of the adjustment remote controller. To prevent this from occurring, it is recommended to take notes of the adjustment data before making adjustments and recording the new data after adjustments have been completed.

Note: The data already described in the adjustment data memo column are fixed data.

Adjustment address	Adjustment voltage output terminal	Adjustment item	Remarks	Adjustment data memo column
00	Pin ⑬ of IC226	HALL OFS1	Hall amp adjustment	
01			—	00
02	Pin ⑨ of IC226	Y2 GAIN	Y2 gain adjustment	
03	Pin ⑧ of IC226	YH GAIN	YH gain adjustment	
04	Pin ⑦ of IC226	C γ CONT	Chroma γ control signal setting value	B0
05	Pin ⑥ of IC226	VAP GAIN	V aperture gain setting value	8E
06	Pin ⑤ of IC226	SHP LEVEL	H aperture level adjustment	
07	Pin ④ of IC226	BURST	Burst level adjustment	
08	Pin ③ of IC226	SET UP	Setup adjustment	
09	Pin ② of IC226	Y LEVEL	Y level adjustment	
0A	Pin ⑱ of IC226	WC LEVEL	White clip level adjustment	
0B	Pin ⑱ of IC226	SYNC	Sync level adjustment	
0C	Pin ⑬ of IC225	RG SET	RG adjustment	
0D	Pin ⑫ of IC225	VSUB SET	Vsub adjustment	
0E			—	00
0F			—	00
10			—	00
11	Pin ⑥ of IC225	R GAIN	Auto white balance adjustment	
12	Pin ⑤ of IC225	C LEVEL	Chroma level adjustment	
13	Pin ④ of IC225	B GAIN	Auto white balance adjustment	
14	Pin ③ of IC225	C1 GAIN	C1 gain adjustment	
15	Pin ② of IC225	Y1 GAIN	Y1 gain adjustment	
16			—	00
17	Pin ⑱ of IC225	AGC MAX	Max gain adjustment	
18	Pin ⑬ of IC224	FADE	Fader signal	00
19	Pin ⑫ of IC224	R CONT	Auto white balance control signal setting value	A0
1A	Pin ⑨ of IC224	B CONT		80
1B			—	00
1C	Pin ⑦ of IC224	R-Y HUE	Color reproduction adjustment	
1D	Pin ⑥ of IC224	B-Y HUE		
1E		AWB PRESET R2	R-Y standard value (lower 1 byte)	
1F		AWB PRESET R1	R-Y standard value (Upper 1 byte)	
20	Pin ③ of IC224	B-Y GAIN	Color reproduction adjustment	
21	Pin ② of IC224	R-Y GAIN		
22		AWB PRESET B2	B-Y standard value (lower 1 byte)	
23		AWB PRESET B1	B-Y standard value (Upper 1 byte)	
24	Pin ⑱ of IC58	IRIS CONT	Iris control signal setting value	50

Table 4-4a

4 Camera Block Adjustments

Adjustment address	Adjustment voltage output terminal	Adjustment item	Remarks	Adjustment data memo column																				
25	Pin ① of IC58	IRIS CENTCOARS	Iris speed adjustment																					
26	Pin ② of IC58	IRIS CENTFINE																						
27	Pin ③ of IC58	AGC CONTCOARS	AGC control signal	70																				
28	Pin ④ of IC58	AGC CONTFINE		00																				
29	Pin ⑤ of IC58	IRIS SET	Iris level adjustment																					
2A	Pin ⑥ of IC58	HALL GAIN 1	Hall amp adjustment																					
2B	Pin ⑦ of IC58	HALL GAIN 2																						
2C	Pin ⑧ of IC58	HALL OFS 2																						
2D	Pin ⑨ of IC58	CLIP MAX	Backlight correction fixed data	35																				
2E	Pin ⑫ of IC58	DET GAIN	DET gain adjustment (Auto focus adjustment)																					
2F	Pin ⑬ of IC58	AGC SET	AGC level adjustment																					
30		ADJUST MODE	Switching between auto iris/auto focus mode <table><tr><th rowspan="2">Data</th><th colspan="2">Mode</th></tr><tr><th>AE</th><th>AF</th></tr><tr><td>00</td><td>Overall light measurement</td><td>AF OFF</td></tr><tr><td>01</td><td>Overall light measurement</td><td>AF ON</td></tr><tr><td>0D</td><td>Multi light measurement</td><td>AF ON</td></tr><tr><td>20</td><td>Iris adjustment</td><td>AF OFF</td></tr><tr><td>40</td><td>Overall light measurement</td><td>AF adjustment</td></tr></table>	Data	Mode		AE	AF	00	Overall light measurement	AF OFF	01	Overall light measurement	AF ON	0D	Multi light measurement	AF ON	20	Iris adjustment	AF OFF	40	Overall light measurement	AF adjustment	0D
Data	Mode																							
	AE	AF																						
00	Overall light measurement	AF OFF																						
01	Overall light measurement	AF ON																						
0D	Multi light measurement	AF ON																						
20	Iris adjustment	AF OFF																						
40	Overall light measurement	AF adjustment																						
31		AESET1	Auto iris setting value fixed data	55																				
32		CLIP SET	Backlight correction fixed data	A6																				
33		AGC LLIMIT	AGC limit adjustment																					
34		AESET2	Auto iris setting value fixed data	2A																				
35		AESET3	Auto iris setting value fixed data	D6																				
36		IRIS REF	Iris standard set adjustment																					
37		MINDET GAIN	MINDET gain adjustment (auto focus adjustment)																					
38		PHOTO POS	Adjust by inputting the value created by adding 10H to the lens level value																					
39		MANFBUF	<table><tr><th colspan="2">Iris setting during adjustment</th></tr><tr><th>Lower data column</th><th>Mode</th></tr><tr><td>0</td><td>Normal mode</td></tr><tr><td>1</td><td>Adjustment mode</td></tr></table>	Iris setting during adjustment		Lower data column	Mode	0	Normal mode	1	Adjustment mode	20												
Iris setting during adjustment																								
Lower data column	Mode																							
0	Normal mode																							
1	Adjustment mode																							
3A		ZOOM TELE	Zoom tele width value																					
3B		ZOOM SPD	Zoom speed set <table><tr><th>Data</th><th>Mode</th></tr><tr><td>FF</td><td rowspan="2">Becomes slower</td></tr><tr><td>↑</td></tr><tr><td>A2</td><td>Below 6.5 second interval set</td></tr><tr><td>96</td><td>6.5-9.0 second interval set</td></tr><tr><td>94</td><td>Above 9.0 second interval set</td></tr><tr><td>↓</td><td rowspan="2">Becomes faster</td></tr><tr><td>00</td></tr></table>	Data	Mode	FF	Becomes slower	↑	A2	Below 6.5 second interval set	96	6.5-9.0 second interval set	94	Above 9.0 second interval set	↓	Becomes faster	00	9B						
Data	Mode																							
FF	Becomes slower																							
↑																								
A2	Below 6.5 second interval set																							
96	6.5-9.0 second interval set																							
94	Above 9.0 second interval set																							
↓	Becomes faster																							
00																								

Table 4-4b

4 Camera Block Adjustments

FF120SW REPAIR MANUAL

Adjustment address	Adjustment voltage output terminal	Adjustment item	Remarks		Adjustment data memo column
3C		FLIK ABS	Flicker detection fixed data		24
3D		FLIK ADD			05
3E		SHUT1	Auto iris, auto focus fixed data		00
3F		SHUT2			00
40		AECNT1			48
41		AECNT2			00
42		INIT MSC			00
43		LCLVL			00
44		LCLVH			00
45		PEAKLOWL			10
46		ZmTblsel			00
47		DELIMIT			FF
48		EV OUT-IN	Iris IN/OUT adjustment		
49		EV IN-OUT			
4A		S RBIO	Auto white balance fixed data		50
4B		S EVOP			86
4C		S EVDT			43
4D		TW LIM			24
4E		ZM TYP			80
4F			—		00
50		R-Y HUE W	Auto white balance fixed data		F2
51		B-Y HUE W			07
52		R-Y HUE ND			F8
53		B-Y HUE ND			0C
54		R-Y HUE T			FB
55		R-Y GAIN W			09
56		B-Y GAIN W			F2
57		R-Y GAIN N			FE
58		B-Y GAIN N			F3
59		R-Y GAIN D			00
5A		B-Y GAIN D			F2
5B		RIN : 0	Indoor mode tracking range	Auto white balance adjustment	
5C		BIN : 0			
5D		RIN : 1			
5E		BIN : 1			
5F		RIN : 2			
60		BIN : 2			
61		RIN : 3			
62		BIN : 3			
63		RIN : 4			
64		BIN : 4			

Table 4-4c

4 Camera Block Adjustments

Adjustment address	Adjustment voltage output terminal	Adjustment item	Remarks		Adjustment data memo column																														
65		ROUT : 0	Outdoor mode tracking range	Auto white balance adjustment																															
66		ROUT : 0																																	
67		ROUT : 1																																	
68		BOUT : 1																																	
69		ROUT : 2																																	
6A		BOUT : 2																																	
6B		W : KIKO	Hue correction range																																
6C		N : KIKO																																	
6D		D : KIKO																																	
6E		SHUT CONT	Electronic shuttter mode		00																														
			<table><tr><th>Data</th><th>Mode</th></tr><tr><td>00</td><td>*1/60 – 1/50 AUTO variable</td></tr><tr><td>01</td><td>1/60</td></tr><tr><td>02</td><td>1/100</td></tr><tr><td>03</td><td>*1/120</td></tr><tr><td>04</td><td>1/125</td></tr><tr><td>05</td><td>*1/250</td></tr><tr><td>06</td><td>*1/500</td></tr><tr><td>07</td><td>*1/1000</td></tr><tr><td>08</td><td>*1/2000</td></tr><tr><td>09</td><td>*1/4000</td></tr><tr><td>0A</td><td>1/10000</td></tr></table>		Data	Mode	00	*1/60 – 1/50 AUTO variable	01	1/60	02	1/100	03	*1/120	04	1/125	05	*1/250	06	*1/500	07	*1/1000	08	*1/2000	09	*1/4000	0A	1/10000							
Data	Mode																																		
00	*1/60 – 1/50 AUTO variable																																		
01	1/60																																		
02	1/100																																		
03	*1/120																																		
04	1/125																																		
05	*1/250																																		
06	*1/500																																		
07	*1/1000																																		
08	*1/2000																																		
09	*1/4000																																		
0A	1/10000																																		
			* Possible to set with the menu.																																
6F		LCD MODE	Switching video jig LCD data display modes		00																														
			<table><tr><th>Data</th><th>Mode</th></tr><tr><td>00</td><td>LCD controll off</td></tr><tr><td>01</td><td>AWB data display</td></tr><tr><td>03</td><td>AGC correction data display</td></tr><tr><td>04</td><td>White balance fluorescent lamp correction data display</td></tr><tr><td>05</td><td>AEF-CPU signal data display mode</td></tr><tr><td>06</td><td>DMC-CPU signal display mode</td></tr><tr><td>07</td><td>LANC data display mode</td></tr><tr><td>08</td><td>Electronic shutter display mode</td></tr><tr><td>09</td><td>AE mode, Iris data, AGC data, overall light measurement data, focus point data</td></tr><tr><td>0A</td><td>AF status, AF estimation value, ZOOM data</td></tr><tr><td>0C</td><td>EVR-CPU program version number display</td></tr><tr><td>0D</td><td>AWB, DBS, AGC correction, R-Y/B-Y GAIN, R-Y/B-Y HUE display</td></tr><tr><td>0E</td><td>AEF-CPU serial 1st code F0-F3 AEF-CPU serial 1st code F4-F7</td></tr><tr><td>10</td><td>Manual focus, volume data</td></tr></table>		Data	Mode	00	LCD controll off	01	AWB data display	03	AGC correction data display	04	White balance fluorescent lamp correction data display	05	AEF-CPU signal data display mode	06	DMC-CPU signal display mode	07	LANC data display mode	08	Electronic shutter display mode	09	AE mode, Iris data, AGC data, overall light measurement data, focus point data	0A	AF status, AF estimation value, ZOOM data	0C	EVR-CPU program version number display	0D	AWB, DBS, AGC correction, R-Y/B-Y GAIN, R-Y/B-Y HUE display	0E	AEF-CPU serial 1st code F0-F3 AEF-CPU serial 1st code F4-F7	10	Manual focus, volume data	
Data	Mode																																		
00	LCD controll off																																		
01	AWB data display																																		
03	AGC correction data display																																		
04	White balance fluorescent lamp correction data display																																		
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09	AE mode, Iris data, AGC data, overall light measurement data, focus point data																																		
0A	AF status, AF estimation value, ZOOM data																																		
0C	EVR-CPU program version number display																																		
0D	AWB, DBS, AGC correction, R-Y/B-Y GAIN, R-Y/B-Y HUE display																																		
0E	AEF-CPU serial 1st code F0-F3 AEF-CPU serial 1st code F4-F7																																		
10	Manual focus, volume data																																		

Table 4-4d

4 Camera Block Adjustments

FF120SW REPAIR MANUAL

Adjustment address	Adjustment voltage output terminal	Adjustment item	Remarks	Adjustment data memo column		
70		AWB MODE	Switching between auto white balance mode/ fader mode	00		
					Data	Mode
					00	AWB mode
					49	All area fixation mode
					59	AWB HOLD
					77	FEED IN TEST mode
					78	FEED OUT TEST mode
					E1	R-CONT, B-CONT, INITIAL DATA OUTPUT
F0	AWB PRESET mode (R-Y, B-Y INITIAL DATA LCD DISPLAY 94CH01 or 08)					
71		SW Z6	Zoom control	00		
					Data	Mode
					00	STOP (NORMAL)
					01	TELE
					02	WIDE
72		OSD MD	Auto white balance fixed data	00		
73		AWB CHK		58		
74		S IOSP		14		
75		AELV B		01		
76		AELV W		E0		
77		SHT 16		08		
78		SHT 61		20		
79		SHT SP		14		
7A		T PWHS		64		
7B		T PWON		96		
7C		CAM REMARK1	Not used			
7D		CAM REMARK2				
7E		CAM REMARK3				
7F		CAM REMARK4				

Table 4-4e

Note: The video jig data display will function normally when the address set switch (SW3) is OFF and will stop functioning when the switch is ON during adjustments at adjustment addresses 24-39, 3A and 47 (used for AEF CPU). It is therefore possible to adjust by alternating between LCD data display measurement (address set switch OFF) and data modification (address set switch ON).

4-1-10. Video jig LCD data display explanation

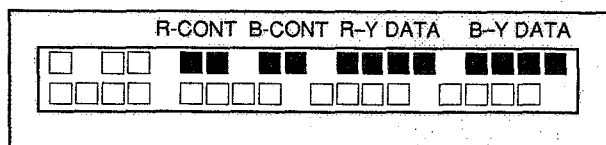
The digital data necessary when making camera block adjustments are displayed on the video jig display.

It is possible to choose the data type by changing the adjustment data of adjustment address 6F.

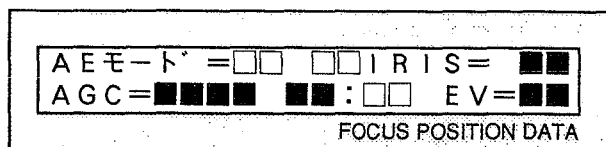
Adjustment address	Adjustment data	Mode	Data used during adjustment
6F	00	Display OFF	—
	01	AWB data display	R-CONT, B-CONT, R-Y data, B-Y data
	09	AE data display	IRIS, EV, AGC, Focus position data
	0A	AF data display	AF estimation value, ZOOM, AF status
	0C	Microprocessor version	—

Table 4-5

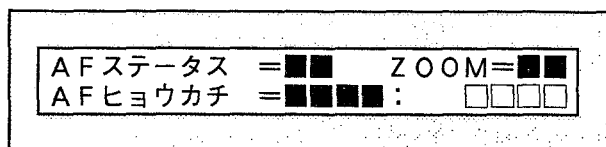
AWB data



AE data



AF data



Microprocessor version

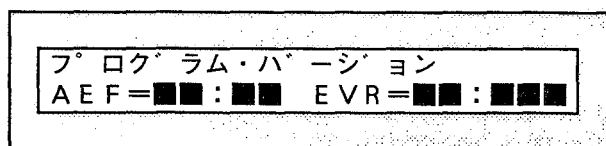


Fig. 4-11 LCD displays (■: data used during adjustment)

Almost all the measurement points for camera block adjustments are located on the "FCA PWB ASSY" check point array (CPA). When adjusting, connect the CPA connector (CN222) on the "FCA PWB ASSY" to the video jig connectors (CN15, CN16) and measure at the video jig CPA check pin. Terminal numbers and signal names are shown in Table 4-2.

Signal name	Terminal No.		Signal name
CAM C	18	17	VH
CAM Y	16	15	V AP
YA	14	13	Y1
W.B.G.	12	11	Y0
RG	10	9	N.C.
IRIS	8	7	HALL
CAM GND	6	5	CAM ADJ
ID	4	3	VD
V SUB	2	1	HD

Table 4-6

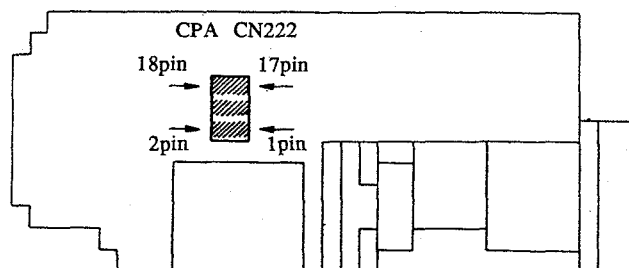


Fig. 4-12

4-2. Camera System Adjustment

4-2-1. EVR initial settings

Before making camera adjustments, set the following adjustment address data to the initial settings.

Adjustment address	Adjustment item	Initial setting data	Final setting data
19	R CONT	7B	A0
1A	B CONT	A9	80
24	IRIS CONT	65	50
2D	CLIP MAX	FF	35
33	AGC LLIMIT	20	Adjustment value
35	AESET3	06	D6
30	ADJUST MODE	00	0D
39	MANFBUF	21	20
70	AWB MODE	E1	00

Table 4-7

Adjusting method:

- 1) Set the adjustment data of the various adjustment addresses to the initial values using the adjustment remote controller. (Refer to Table 4-7)
- 2) Write the data to the various adjustment addresses.

* After the various camera adjustments have been completed, be sure to write the final setting data to the adjustment addresses listed in Table 4-7.

The "final setting data" is identical to the fixed data in the adjustment data memo column of the various adjustment address function description table in the [Precautions on the use of the adjustment remote controller] section.

Note: 1) For adjustment address 33 (AGC LLIMIT), write the initial setting data, then do the camera system adjustments in the order of the adjustment items and write the adjustment data to the address when doing the AGC limit adjustment.

< Example >
 Lens level value = 36
 Value set in 4) = 46
 Focus point value = 0F
 Adding value = 02
 In this case, the adjustment value is
 $46 - 0F + 02 = 39$

4-2-2. Flange back adjustment

Subject	Siemens Star (Use with the pattern box power OFF)
Close-up lens	SLB-50-600P
Measuring point	Video jig LCD display focus position data
Measuring instrument	Video jig LCD
Adjustment address	38 (PHOTO POS)

Adjusting method:

- 1) Position the camera as shown in Fig. 4-13.
- 2) Set the zoom to its widest position with video jig SW6 (WIDE).
- 3) Open the iris by holding adjustment address 25 (IRIS CENTCOARS) to "FF" with the adjustment remote controller.
- 4) Write the lens label value to +10H as data to adjustment address 38.
- 5) After setting adjustment address 39 (MANFBUF) to "22", set it to "21".
- 6) Set adjustment address 30 (ADJUST MODE) to "09" and check that the AF stops when focused.
- 7) Set adjustment address 6F (LCD MODE) to "0A" and set the LCD display to AF data display mode.
- 8) Read the last column of the AF status data on the LCD display and check that it is 8, 9, or B.
- 9) Set adjustment address 6F to "09" and set the LCD display to the AE data display mode.
- 10) Read the focus point data on the LCD display, subtract that value from the value write in 4) and then add 2 stops (In case of a lens with a white label with a red line, add 3 stops) and write the data to adjustment address 38.
- 11) Set video jig SW1 (PWR) to the ON position after turning the camera power OFF.

Note: If the subject is too bright or has white spots when the iris is opened, use an ND filter to bring the white level degree down to 100 IRE.

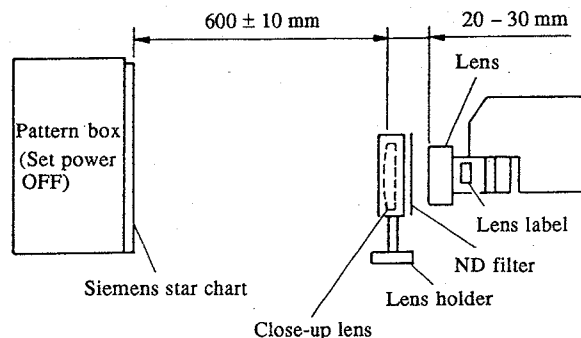


Fig. 4-13

4 Camera Block Adjustments

4-2-3. Power supply check (FCA PWB)

Measuring instrument	Digital voltmeter
CAM 5 V check	
Measuring point	Pin ③ of W51
Specified value	4.8 ± 0.1 Vdc
CCD -9 V check	
Measuring point	Pin ② of W51
Specified value	-9.0 ± 1.0 Vdc
CCD 15 V check	
Measuring point	Pin ④ of W51
Specified value	15.0 ± 1.0 Vdc
CAM UNREG check	
Measuring point	Pin ⑤ of W51 (Pin ③ of FDD-4.CN1)
Specified value	DC/DC CONVERTER UNREG voltage output value

Checking method:

- 1) Confirm that each power supply voltage value meets the specified value.

4-2-4. RG, V_{SUB} adjustment

A. RG adjustment (FCA PWB)

Subject	Not necessary
Measuring point	Video jig TP10 pin (RG)
Measuring instrument	Oscilloscope
Adjustment address	0C (RG SET)
Specified value	CCD imager voltage ± 0.1 Vdc

Adjusting method:

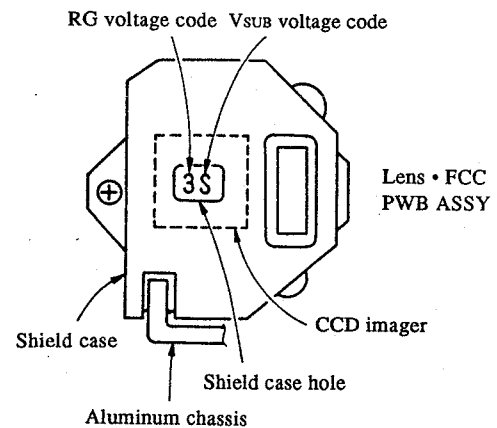
- 1) Measure at the video jig TP10 pin.
- 2) Change adjustment address 0C data, adjusting the RG voltage to CCD imager voltage ± 0.1 Vdc using the adjustment remote controller.
- 3) Write the adjustment data to adjustment address 0C.

B. V_{SUB} adjustment (FCA PWB)

Subject	Not necessary
Measuring point	Video jig TP2 pin (V _{SUB})
Measuring instrument	Oscilloscope
Adjustment address	0D (V _{SUB} SET)
Specified value	CCD imager voltage ± 0.1 Vdc

Adjusting method:

- 1) Measure at the video jig TP2 pin.
- 2) Change adjustment address 0D data, adjusting the V_{SUB} voltage to CCD imager voltage ± 0.1 Vdc using the adjustment remote controller.
- 3) Write the adjustment data to adjustment address 0D.



V _{SUB} voltage	Voltage (Vdc)
E	9.0
F	9.5
G	10.0
H	10.5
J	11.0
K	11.5
L	12.0
M	12.5
N	13.0
P	13.5
Q	14.0
R	14.5
S	15.0
T	15.5
U	16.0
V	16.5
W	17.0
X	17.5
Y	18.0
Z	18.5

RG voltage	Voltage (Vdc)
0	0.5
1	1.0
2	1.5
3	2.0
4	2.5
5	3.0
6	3.5
7	4.0

Fig. 4-14

4 Camera Block Adjustments

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4-2-5. Hall amplifier adjustment (FCA PWB)

Subject	Not necessary
Measuring point	Video jig LCD display iris data
Measuring instrument	Video jig LCD
Adjustment address	00 (HALL OFS1) 24 (HALL GAIN1) 2B (HALL GAIN2) 2C (HALL OFS2)
Specified value	When adjustment address 25 (IRIS CENTCOARS) is 00: 0D – 13, FF: ED – F3

Adjusting method:

- 1) Set adjustment address "6F" (LCD MODE) to "09" using the adjustment remote control and set the LCD display to AE data display mode.
- 2) Set adjustment address 30 (ADJUST MODE) to "20" and put into iris adjust mode.
- 3) After setting adjustment address 24 (IRIS CONT) data to "64" set it to "65".
- 4) Write "80" to adjustment addresses 2B and 2C, and read the iris data on the LCD display.
- 5) Set adjustment address 25 to "00", and change the data of adjustment address 2C, then write the data to adjustment address 2C after adjusting iris data to within the "0D – 13" range.

* If it is not possible to preset adjustment address 2C, change the data of adjustment address 00 and adjust.

- 6) Set adjustment address 25 to "FF", and change the data of adjustment address 2B, then write the data to adjustment address 2B after adjusting iris data to within the "ED – F3" range.

* If it is not possible to preset adjustment address 2B, change the data of adjustment address 2A to either "FF", "8C", "72" or "00".

- 7) Set adjustment address 25 to "00" and check that the iris data is within the "0D – 13" range. If the data is not within the "0D – 13" range, repeat steps 5) – 7) until it meets the specified value.

* When adjustment address 25 is set to "00" it becomes IRIS CLOSE, if set to "FF" it becomes IRIS OPEN.

4-2-6. Iris speed adjustment (FCA PWB)

Subject	Not necessary
Measuring point	Video jig TP7 pin (HALL)
Measuring instrument	Oscilloscope
Adjustment address	25 (IRIS CENTCOARS) 26 (IRIS CENTFINE)
Specified value	$T1/T2 \leq 1.2$ T: Time that the hall voltage takes to flux between 2 – 3 Vdc.

Adjusting method:

- 1) Follow step 1) – 3) of the hall amplifier adjustment.
- 2) Write "80" to adjustment addresses 25 and 26, and measure the hall voltage at video jig TP7 pin.
- 3) Change the data of adjustment address 25 from "00", and write the data at the point where it nears to stop when the hall voltage is adjusted within the 2 – 3 Vdc range.
- 4) Set adjustment address 26 to "62" (voltage increase) and "68" (voltage decrease), and measure the time it takes for the hall voltage to go from 2 to 3 Vdc (Tu) and the time it takes to go from 3 to 2 Vdc (Td).
- 5) Take the longer time interval of the two (Tu, Td), and make it T1. Then take the shorter interval, and make it T2. Use the $T1/T2 \leq 1.2$ formula ($T1=T2$ is ideal) and change the data in adjustment address 26. Write the data to the address.

* When the data of adjustment address 26 is decreased,

Tu : increases, Td: decreases

* When the data of adjustment address 26 is increased,

Tu: decreases, Td: increases

- 6) Repeat steps 4) and 5) until the specified value is met.
- 7) Write the adjustment data to adjustment addresses 25 and 26.
- 8) Set adjustment address 30 to "00".

4 Camera Block Adjustments

4-2-7. Iris level adjustment (FCA PWB)

Subject	Color bar chart standard picture frame
Measuring point	Video jig TP8 pin (IRIS)
Measuring instrument	Oscilloscope
Adjustment address	29 (IRIS SET)
Specified value	200 ± 10 mVp-p

Adjusting method:

- 1) Set the color bar chart in the standard picture frame.
- 2) Use the adjustment remote controller to set adjustment address 30 (ADJUST MODE) to "01" then set it to "00" after focusing.
- 3) Measure the color bar chart white level at the video jig TP8 pin.
- 4) Change the data of adjustment address 29, and adjust the white level to 200 ± 10 mVp-p.
- 5) Write the data to adjustment address 29.

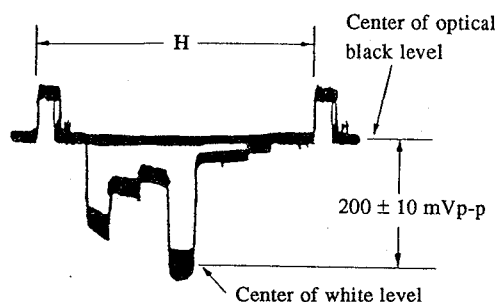


Fig. 4-15 Iris level

4-2-8. AGC level adjustment (FCA PWB)

Subject	Color bar chart standard picture frame
Measuring point	Video jig TP14 pin (YA)
Measuring instrument	Oscilloscope
Adjustment address	2F (AGC SET)
Specified value	220 ± 5 mVp-p

Adjusting method:

- 1) Measure the color bar chart white level at video jig TP14 pin.
- 2) Change the data of adjustment address 2F, and adjust the white level to 220 ± 5 mVp-p.
- 3) Write the adjustment data to adjustment address 2F.

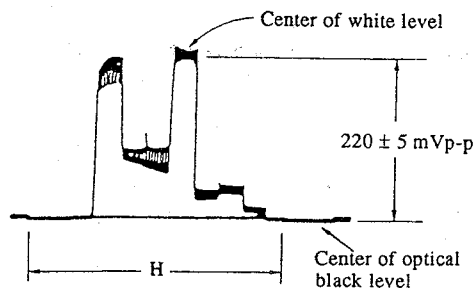


Fig. 4-16 AGC level

4-2-9. YH gain adjustment (FCA PWB)

Subject	Color bar chart standard picture frame
Measuring point	Video jig TP17 pin (YH)
Measuring instrument	Oscilloscope
Adjustment address	3 (YH GAIN)
Specified value	1.00 ± 0.02 Vp-p

Adjusting method:

- 1) Measure the color bar chart white level at video jig TP17 pin.
- 2) Change the data of adjustment address 03, and adjust the white level to 1.00 ± 0.02 Vp-p.
- 3) Write the adjustment data to adjustment address 03.

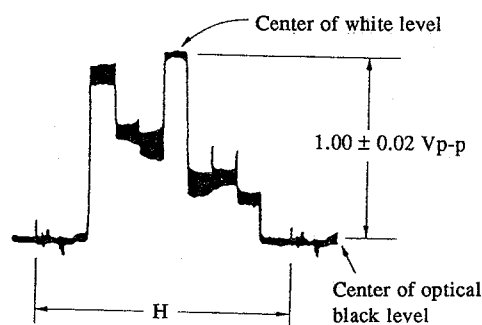


Fig. 4-17 YH gain

4-2-10. Y1 gain adjustment (FCA PWB)

Subject	Color bar chart standard picture frame
Measuring point	Video jig TP11 pin (Y0) and TP13 (Y1)
Measuring instrument	Oscilloscope
Adjustment address	15 (Y1 GAIN)
Specified value	Y1 level = Y0 level

Adjusting method:

- 1) Measure video jig TP11 and TP13 (INVERT ON) pin signals as a combined waveform.
- 2) Use the adjustment remote controller to change the data of adjustment address 15, and adjust until Y1 level = Y0 level (flat line).
- 3) Write the adjustment data to adjustment address 15.

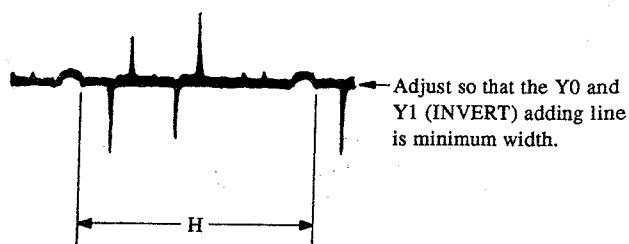


Fig. 4-18 Y1 gain

4 Camera Block Adjustments

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4-2-11. Y2 gain adjustment (FCA PWB)

Subject	Color bar chart standard picture frame
Measuring point	Video jig TP15 pin (V.AP)
Measuring instrument	Oscilloscope
Adjustment address	02 (Y2 GAIN)
Specified value	Set the video signal to its minimum

Adjusting method:

- 1) Measure the video signal at video jig TP15 pin.
- 2) Change the data of adjustment address 02 using the adjustment remote controller, and adjust the video signal to its minimum (flat line).
- 3) Write the adjustment data to adjustment address 02.

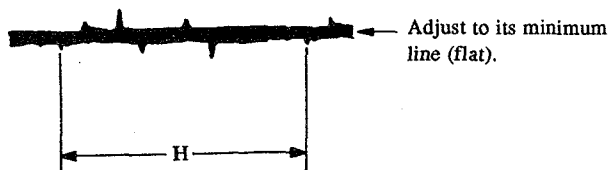


Fig. 4-19 Y2 gain

4-2-12. C1 gain adjustment (FCA PWB)

Subject	Color bar chart standard picture frame
Measuring point	R signal luminous points on the vectorscope
Measuring instrument	Vectorscope
Adjustment address	14 (C1 GAIN)
Specified value	Minimize the separation between the luminous points of the R signal

Adjusting method:

- 1) Measure the R signal luminous points on the vectorscope.
- 2) Change the data of adjustment address 14 using the adjustment remote controller, and adjust so that the distance between the luminous points is at a minimum.
- 3) Write the adjustment data to adjustment address 14.

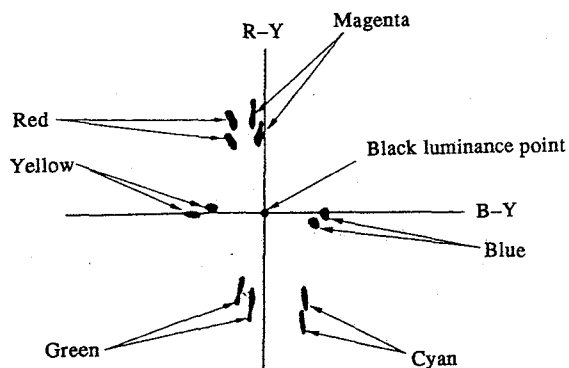


Fig. 4-20 C1 gain

4-2-13. Burst level adjustment (FCA PWB)

Subject	Not necessary
Measuring point	Video jig TP18 pin (CAM.C)
Measuring instrument	Oscilloscope
Adjustment address	07 (BURST LEVEL)
Specified value	300 ± 8 mVp-p

Adjusting method:

- 1) Measure the burst level at video jig TP18 pin.
- 2) Change the data of adjustment address 07 using the adjustment remote controller, and adjust the burst level to 300 ± 8 mVp-p.
- 3) Write the adjustment data to adjustment address 07.

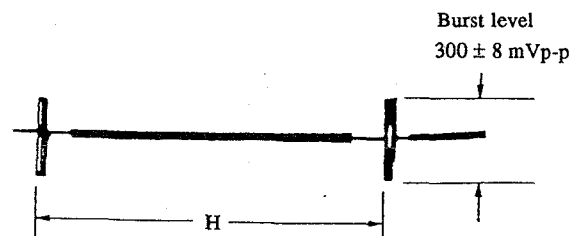


Fig. 4-21 Burst level

4-2-14. Chroma level adjustment (FCA PWB)

Subject	Color bar chart standard picture frame
Measuring point	Video jig TP12 pin (W.B.G)
Measuring instrument	Oscilloscope
Adjustment address	12 (C LEVEL)
Specified value	400 ± 10 mVp-p

Adjusting method:

- 1) Measure the color bar chart white level at video jig TP12 pin.
- 2) Change the data of adjustment address 12 using the adjustment remote controller, and adjust the white level to 400 ± 10 mVp-p.
- 3) Write the adjustment data to adjustment address 12.

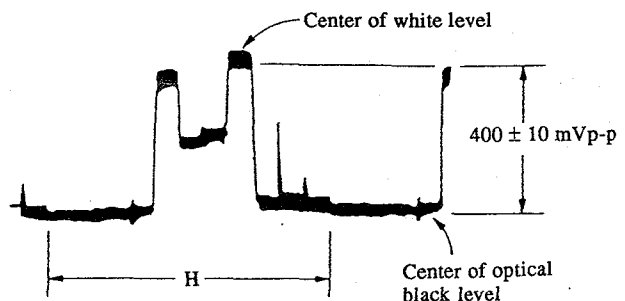


Fig. 4-22 Chroma level

4 Camera Block Adjustments

4-2-15. SYNC level adjustment (FCA PWB)

Subject	Not necessary
Measuring point	Video jig TP16A (CAM.Y)
Measuring instrument	Oscilloscope
Adjustment address	0B (SYNC.LEVEL)
Specified value	300 ± 5 mVp-p

Adjusting method:

- 1) Measure the SYNC level at video jig TP16A pin.
- 2) Change the data of adjustment address 0B using the adjustment remote controller, and adjust the SYNC level to 300 ± 5 mVp-p.
- 3) Write the adjustment data to adjustment address 0B.

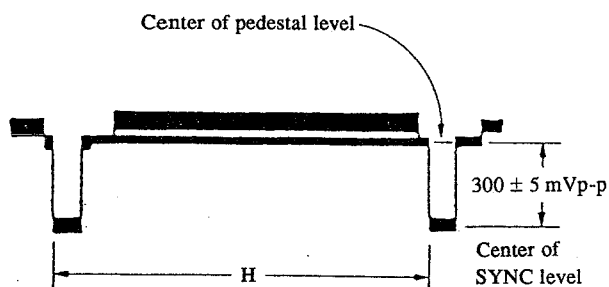


Fig. 4-23 SYNC level

4-2-16. Setup adjustment (FCA PWB)

Subject	All black
Measuring point	Video jig TP16B (CAM.Y. SUB)
Measuring instrument	Oscilloscope
Adjustment address	08 (SETUP)
Specified value	10 ± 5 mVp-p

Adjusting method:

- 1) Cover the lens.
- 2) Measure the black level at video jig TP16B pin.
- 3) Change the data of adjustment address 08, and adjust the black level to 10 ± 5 mVp-p.
- 4) Write adjustment data to adjustment address 08.
- 5) Remove the lens cover.

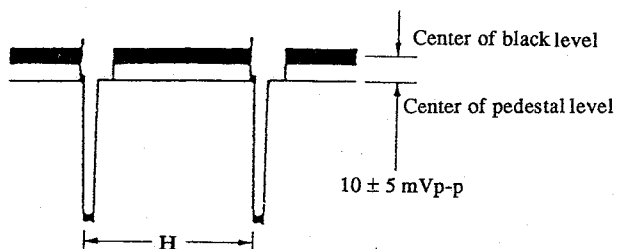


Fig. 4-24 Setup

4-2-17. White clip adjustment (FCA PWB)

Subject	Color bar chart standard picture frame
Measuring point	Video jig TP16A (CAM.Y)
Measuring instrument	Oscilloscope
Adjustment address	0A (WC LEVEL)
Specified value	840 ± 10 mVp-p

Adjusting method:

- 1) Hold adjustment address 09 (Y LEVEL) to "E0" using the adjustment remote control.
- 2) Measure the color bar chart white level at video jig TP16A pin.
- 3) Change the data of adjustment address 0A using the adjustment remote controller, and adjust the white level to 840 ± 10 mVp-p.
- 4) Write the adjustment data to adjustment address 0A.

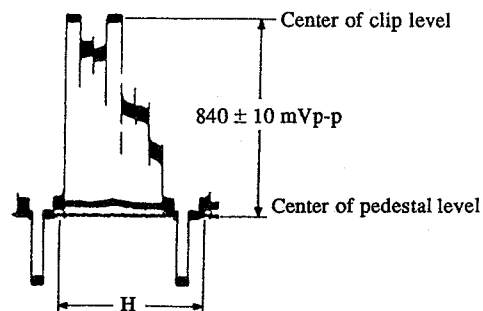


Fig. 4-25 White clip

4-2-18. Y level adjustment (FCA PWB)

Subject	Color bar chart standard picture frame
Measuring point	Video jig TP16A (CAM.Y)
Measuring instrument	Oscilloscope
Adjustment address	09 (Y LEVEL)
Specified value	700 ± 10 mVp-p

Adjusting method:

- 1) Measure the color bar chart white level at video jig TP16A pin.
- 2) Change the data of adjustment address 09 using the adjustment remote controller, and adjust the white level to 700 ± 10 mVp-p.
- 3) Write the adjustment data to adjustment address 09.

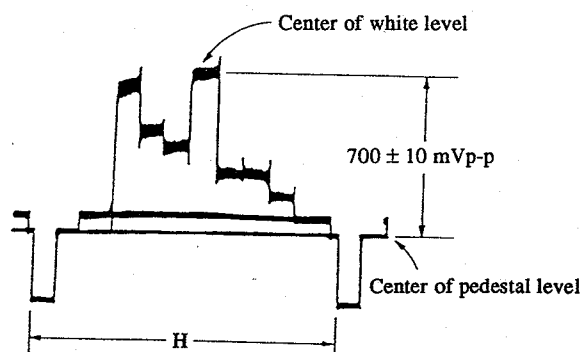


Fig. 4-26 Y level

4 Camera Block Adjustments

FF120SW REPAIR MANUAL

4-2-19. Auto white balance adjustment

A. Preset adjustment (FCA PWB)

Subject	All white (completely white screen)
Filter	LB140
Measuring point	White signal luminous points on the vectorscope
Measuring instrument	Vectorscope
Adjustment address	11 (R GAIN), 13 (B GAIN), 1E (R-Y LSB), 1F (R-Y MSB), 22 (B-Y LSB), 23 (B-Y MSB)
Specified value	Refer to Fig. 4-27.

Adjusting method:

- 1) Attach the LB140 filter and shoot the all white chart.
- 2) Set adjustment address 19 (R-CONT) to "A0" and address 1A (B-CONT) to "80" using the adjustment remote controller and write to their addresses.
- 3) Measure the luminous points on the vectorscope.
- 4) Change the data of adjustment addresses 11 and 13, and adjust the white signal luminous points to within the specified limits and write the various adjustment data to their addresses.
- 5) Set adjustment address 6F (LCD MODE) to "01" and set the LCD display to AWB data display mode.
- 6) Set adjustment address 70 (AWB MODE) to "F0" and measure the R-Y, B-Y data on the LCD display.
- 7) Write the data in the first 2 columns of the R-Y data to adjustment address 1F and data in the last 2 columns to adjustment address 1E.
- 8) Write the data in the first 2 columns of the B-Y data to adjustment address 23 and the data in the last 2 columns to adjustment address 22.
- 9) Set adjustment address 70 to "E1".
- 10) Remove the LB140 lens.

< Vectorscope >

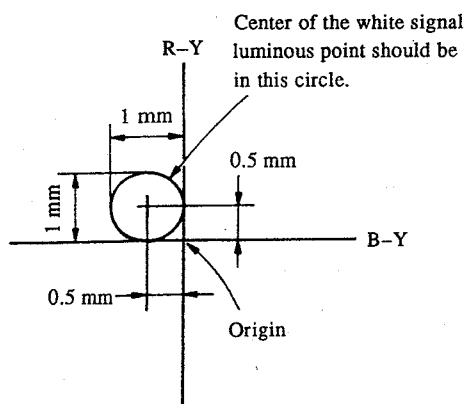


Fig.4-27 Auto white balance preset

B. Auto white balance data set (FCA PWB)

Subject	All white (completely white screen)	
Measuring point	R-CONT, B-CONT data on the video jig LCD display White signal luminous points on the vectorscope	
Measuring instrument	Video jig LCD, Vectorscope	
Adjustment address	5B (RIN:0) 5D (RIN:1) 5F (RIN:2) 61 (RIN:3) 63 (RIN:4) 65 (ROUT:0) 67 (ROUT:1) 69 (ROUT:2) 6B (W:KIKO) 6D (D:KIKO)	5C (BIN:0) 5E (BIN:1) 60 (BIN:2) 62 (BIN:3) 64 (BIN:4) 66 (BOUT:0) 68 (BOUT:1) 6A (BOUT:2) 6C (N:KIKO)
Specified value	White signal luminous points: Refer to Fig. 4-28 for position check. Set data: Enter the pertinent data from the AWB table.	

Adjusting method:

- 1) Shoot the all white chart after doing the preset adjustment.
- 2) Set adjustment address 6F (LCD MODE) to "01" and set the LCD display to AWB data display mode.
- 3) Set adjustment address 70 (AWB MODE) to "49", fix the auto white balance and check that the R-CONT and B-CONT data stop at the standard value on the LCD display.
- 4) Measure the white signal luminous points on the vectorscope and check that the positions are within the specified limits after fixation.

< Vectorscope >

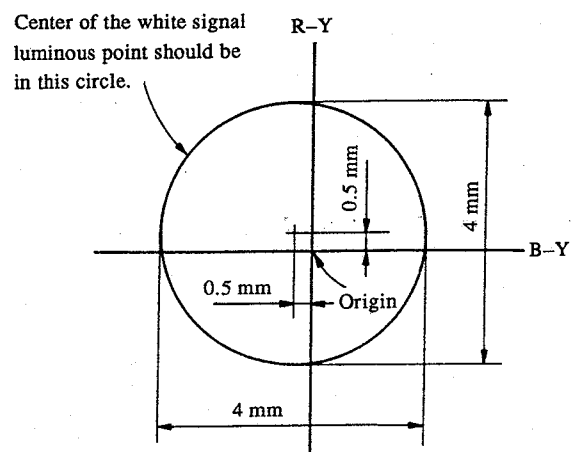


Fig. 4-28 Auto white balance data set

- 5) Set the adjustment address 70 to "59".
- 6) Read the R-CONT, B-CONT data on the LCD display, use those values to find the adjustment data for adjustment addresses on the AWB table and write them to the addresses.

Use the R-CONT data to locate the adjustment data for addresses 5B, 5D, 5F, 61, 63, 65, 67, 69, 6B, 6C and 6D from Table 4-8 AWB data table (R-CONT).

Use the B-CONT data to locate the adjustment data for addresses 5C, 5E, 60, 62, 64, 66, 68 and 6A from Table 4-9 AWB data table (B-CONT).

- * If the R-CONT or B-CONT data is not found in the AWB data table, find the adjustment data by calculation.

- * The formula for obtaining the adjustment data for addresses that use the R-CONT data is

$$= \frac{160 - Rd}{38} \times (Kd - 160) + 160$$

Rd is the decimal value obtained when converting the hexadecimal R-CONT data into a decimal number.

Kd denotes the decimal value found in the standard value table (decimal) of the adjustment address for which the calculation is being done.

Adjustment address 6D uses the adjustment address 61 adjustment data value subtracted 7 as its adjustment data.

- * The formula for obtaining the adjustment data for addresses that use the B-CONT data is

$$= \frac{Bd - 128}{37} \times (Kd - 128) + 128$$

Bd is the decimal value obtained when converting the hexadecimal B-CONT data into a decimal number.

Kd denotes the decimal value found in the standard value table (decimal) of the adjustment address for which the calculation is being done.

4 Camera Block Adjustments

FF120SW REPAIR MANUAL

	Standard value hexadecimal decimal	Adjustment address										
		5B	5D	5F	61	63	65	67	69	6B	6C	6D
		7C 124	8C 140	9C 156	A6 166	A6 166	92 146	9C 156	A1 161	7F 127	91 145	9F 159
R C O N T D A T A	60	63	7E	99	AA	AA	88	99	A2	68	87	A3
	61	64	7F	99	AA	AA	89	99	A2	69	87	A3
	62	65	7F	99	AA	AA	89	99	A2	6A	88	A3
	63	66	80	9A	AA	AA	8A	9A	A2	6B	88	A3
	64	67	80	9A	A9	A9	8A	9A	A2	6C	88	A2
	65	68	81	9A	A9	A9	8A	9A	A2	6D	89	A2
	66	69	81	9A	A9	A9	8B	9A	A2	6E	89	A2
	67	6A	82	9A	A9	A9	8B	9A	A2	6F	8A	A2
	68	6B	83	9A	A9	A9	8B	9A	A1	6F	8A	A2
	69	6C	83	9A	A9	A9	8C	9A	A1	70	8A	A2
	6A	6D	84	9A	A9	A9	8C	9A	A1	71	8B	A2
	6B	6E	84	9A	A8	A8	8C	9A	A1	72	8B	A1
	6C	6F	85	9B	A8	A8	8D	9B	A1	73	8B	A1
	6D	70	85	9B	A8	A8	8D	9B	A1	74	8C	A1
	6E	71	86	9B	A8	A8	8E	9B	A1	75	8C	A1
	6F	72	86	9B	A8	A8	8E	9B	A1	75	8D	A1
	70	73	87	9B	A8	A8	8E	9B	A1	76	8D	A1
	71	73	87	9B	A7	A7	8F	9B	A1	77	8D	A0
	72	74	88	9B	A7	A7	8F	9B	A1	78	8E	A0
	73	75	88	9B	A7	A7	8F	9B	A1	79	8E	A0
	74	76	89	9B	A7	A7	90	9B	A1	7A	8F	A0
	75	77	89	9B	A7	A7	90	9B	A1	7B	8F	A0
	76	78	8A	9C	A7	A7	91	9C	A1	7C	8F	A0
	77	79	8A	9C	A6	A6	91	9C	A1	7C	90	9F
	78	7A	8B	9C	A6	A6	91	9C	A1	7D	90	9F
	79	7B	8B	9C	A6	A6	92	9C	A1	7E	91	9F
	7A	7C	8C	9C	A6	A6	92	9C	A1	7F	91	9F
	7B	7D	8D	9C	A6	A6	92	9C	A1	80	91	9F
	7C	7E	8D	9C	A6	A6	93	9C	A1	81	92	9F
	7D	7F	8E	9C	A6	A6	93	9C	A1	82	92	9F
	7E	80	8E	9C	A5	A5	93	9C	A1	82	93	9E
	7F	81	8F	9D	A5	A5	94	9D	A1	83	93	9E
80	82	8F	9D	A5	A5	94	9D	A1	84	93	9E	
81	83	90	9D	A5	A5	95	9D	A1	85	94	9E	
82	84	90	9D	A5	A5	95	9D	A1	86	94	9E	
83	85	91	9D	A5	A5	95	9D	A1	87	95	9E	

Table 4-8 AWB DATA (R-CONT)

	Standard value hexadecimal decimal	Adjustment address							
		5C	5E	60	62	64	66	68	6A
		B1 177	AA 170	8E 142	7B 123	75 117	8B 139	79 121	6F 111
B C O N T D A T A	95	9C	98	88	7D	7A	86	7C	76
	96	9D	99	88	7D	79	87	7C	76
	97	9E	9A	89	7D	79	87	7C	75
	98	A0	9B	89	7D	79	87	7B	75
	99	A1	9C	89	7D	79	87	7B	75
	9A	A2	9E	8A	7C	78	88	7B	74
	9B	A4	9F	8A	7C	78	88	7B	74
	9C	A5	A0	8B	7C	78	88	7B	73
	9D	A6	A1	8B	7C	77	89	7B	73
	9E	A8	A2	8B	7C	77	89	7A	72
	9F	A9	A3	8C	7C	77	89	7A	72
	A0	AA	A4	8C	7C	76	8A	7A	71
	A1	AC	A5	8C	7C	76	8A	7A	71
	A2	AD	A7	8D	7B	76	8A	7A	70
	A3	AE	A8	8D	7B	76	8A	79	70
	A4	B0	A9	8E	7B	75	8B	79	6F
	A5	B1	AA	8E	7B	75	8B	79	6F
	A6	B2	AB	8E	7B	75	8B	79	6F
	A7	B4	AC	8F	7B	74	8C	79	6E
	A8	B5	AD	8F	7B	74	8C	78	6E
	A9	B6	AF	90	7A	74	8C	78	6D
	AA	B8	B0	90	7A	74	8C	78	6D
	AB	B9	B1	90	7A	73	8D	78	6C
	AC	BA	B2	91	7A	73	8D	78	6C
	AD	BC	B3	91	7A	73	8D	77	6B
	AE	BD	B4	91	7A	72	8E	77	6B
	AF	BE	B5	92	7A	72	8E	77	6A
	B0	C0	B6	92	7A	72	8E	77	6A
	B1	C1	B8	93	79	71	8F	77	69
	B2	C2	B9	93	79	71	8F	77	69
	B3	C4	BA	93	79	71	8F	76	69
	B4	C5	BB	94	79	71	8F	76	68
B5	C6	BC	94	79	70	90	76	68	
B6	C8	BD	94	79	70	90	76	67	
B7	C9	BE	95	79	70	90	76	67	
B8	CA	C0	95	78	6F	91	75	66	
B9	CB	C1	96	78	6F	91	75	66	
BA	CD	C2	96	78	6F	91	75	65	
BB	CE	C3	96	78	6E	92	75	65	
BC	CF	C4	97	78	6E	92	75	64	
BD	D1	C5	97	78	6E	92	74	64	
BE	D2	C6	97	78	6E	92	74	64	
BF	D3	C8	98	77	6D	93	74	63	

Table 4-9 AWB DATA (B-CONT)

C. Color reproduction adjustment (FCA PWB)

Subject	Color bar chart standard picture frame
Measuring point	R signal, Ye signal luminous points on the vectorscope.
Measuring instrument	Vectorscope
Adjustment address	1C (R-Y HUE) 1D (B-Y HUE) 20 (B-Y GAIN) 21 (R-Y GAIN)
Specified value	All color luminous points are within the color reproduction frame. (Refer to Fig. 4-29.)

Adjusting method:

- 1) Set the color bar chart in the standard picture frame after doing the preset adjustment and auto white balance set.
- 2) Measure the R signal, Ye signal luminous points on the vectorscope.
- 3) Change the data of adjustment addresses 1C, 1D, 20, 21 using the adjustment remote controller and restore the R signal and Ye signal luminous point centers to within the color reproduction frame (inside frame) while entering the various adjustment data to the addresses.
- 4) Check that all the other color signal luminous points are within the color reproduction frame.
- 5) Write the adjustment data to the various adjustment addresses.

* If there are signals outside the color reproduction frame, adjust the R and Ye signals so that the centers of their luminous points are within the outer limits of the color reproduction frames to meet the specification.

* Set burst level of the vectorscope to "set up 0".

<Color reproduction frame>

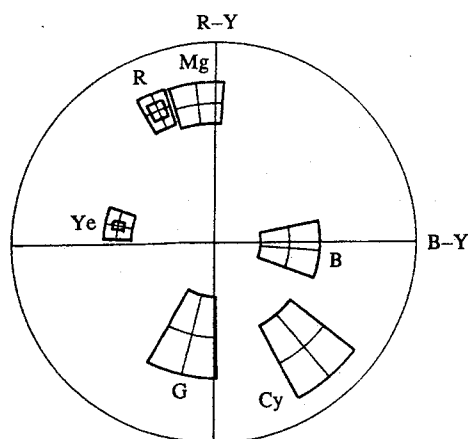


Fig. 4-29 Color reproduction

4-2-20. Max gain adjustment (FCA PWB)

Subject	All white (Zoom to WIDE)
Filter	ND 0.3
Measuring point	Video jig TP16B pin (CAM.Y.SUB)
Measuring instrument	Oscilloscope
Adjustment address	17 (AGC MAX)
Specified value	$349 \times (D/0.3)^{0.6} \pm 10 \text{ mVp-p}$ D: ND 0.3 filter true permeability rate (%)

Adjusting method:

- 1) Set adjustment address 6E to "0B".
- 2) Set the zoom to its widest position with video jig SW6 (WIDE).
- 3) Attach the ND 0.3 filter.
- 4) Measure the white level at video jig TP16B pin.
- 5) Change the data of adjustment address 17 using the adjustment remote controller, and adjust the white level to the calculated specified value $\pm 10 \text{ mVp-p}$.
- 6) Write the adjusted data of adjustment address 17.
- 7) Remove the ND 0.3 filter.
- 8) Set adjustment address 6E to "01".

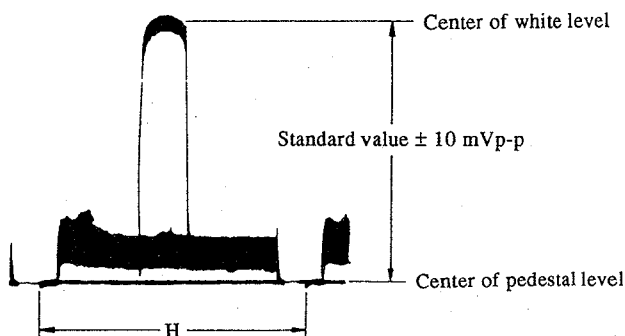


Fig. 4-30 Max gain

<Calculation example>

Using a HOYA GLASS ND 0.3 filter, true permeability D=0.22 (%),

$$\begin{aligned} \text{Specified value} &= 349 \times (0.22/0.3)^{0.6} \pm 10 \text{ mVp-p} \\ &= 313 \pm 10 \text{ mVp-p} \end{aligned}$$

4 Camera Block Adjustments

4-2-21. SHP level adjustment (FCA PWB)

Subject	In-megacycle Chart picture frame (full frame)
Measuring point	Video jig TP16A pin (CAM.Y)
Measuring instrument	Oscilloscope
Adjustment address	06 (SHP LEVEL)
Specified value	2.5 MHz signal level $75 \pm 3\%$ when 0.5 MHz signal level is at 100% conversion.

Adjusting method:

- 1) After setting the In-megacycle Chart in the monitor underscan picture frame (full frame), adjust video jig RV1 (M.FOCUS) until it is in focus.
- 2) Measure the 2.5 MHz signal level at video jig TP16A pin.
- 3) Change the data of the adjustment address 06 using the adjustment remote controller, and adjust the 2.5 MHz signal level until it is at $75 \pm 3\%$ when the 0.5 MHz signal level is at 100% conversion.
- 4) Write the adjusted data to adjustment address 06.

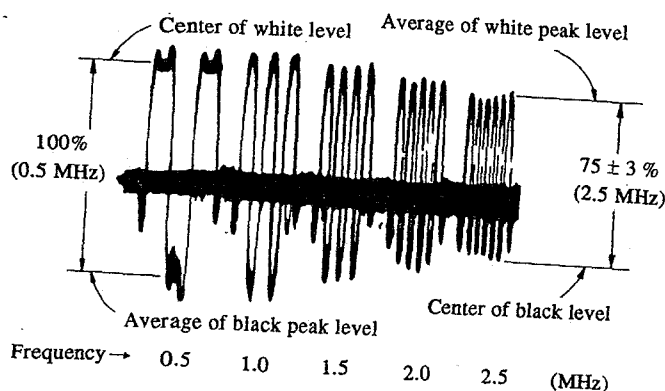


Fig. 4-31 SHP level

4-2-22. ZOOM TELE adjustment (FCA PWB)

Subject	Not necessary
Measuring point	Video jig LCD display ZOOM data
Measuring instrument	Video jig LCD
Adjustment address	3A (ZOOM TELE)
Specified value	Greater than D0

Adjusting method:

- 1) Set the zoom position to its most telephotographic position with video jig SW5 (TELE).
- 2) Set adjustment address 6F (LCD MODE) to "0A" using the adjustment remote controller and set the LCD display to AF data display mode.
- 3) Measure the ZOOM data on the LCD display and write the data to adjustment address 3A.

4-2-23. AGC limit adjustment (FCA PWB)

Subject	All white (completely white screen)
Measuring point	Video jig LCD display AGC data
Measuring instrument	Video jig LCD
Adjustment address	33 (AGC LLIM)
Specified value	The value of the first 2 columns of the AGC data display (hexadecimal) decreased by 1 LSB.

Adjusting method:

- 1) Set the zoom position to its most telephotographic position with video jig SW5 (TELE).
- 2) Set adjustment address 6F (LCD MODE) to "09" using the adjustment remote controller and set the LCD display to AE data display mode.
- 3) Measure the first 2 columns of the AGC data display values (hexadecimal), decrease this number by 1 LSB and write the new value to adjustment address 33.

<Example>

If the AGC data on the LCD display is as shown below.

$$\text{AGC} = 5A80$$

↑
first 2 columns

Adjustment address 33 set data is

$$5A - 01 = 59$$

↑
1 LSB data

Write "59" to the address.

4-2-24. Iris standard set (FCA PWB)

Subject	All white (completely white screen)
Measuring point	Video jig LCD display IRIS data
Measuring instrument	Video jig LCD
Adjustment address	36 (IRIS REF)
Specified value	—

Adjusting method:

- 1) Set the zoom position to its most telephotographic position with video jig SW5 (TELE).
- 2) Set adjustment address 6F (LCD MODE) to "09" using the adjustment remote controller and set the LCD display to AE data display mode.
- 3) Measure the IRIS data on the LCD display and write that value to adjustment address 36.

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4-2-25. Iris IN/OUT adjustment (FCA PWB)

Subject	All white (completely white screen)
Filter	ND 13, ND 40
Measuring point	Video jig LCD display EV data
Measuring instrument	Video jig LCD
Adjustment address	48 (EV OUT-IN), 49 (EV IN-OUT)
Specified value	—

Adjusting method:

- 1) Set the zoom position to its most telephotographic position with video jig SW5 (TELE).
- 2) Set adjustment address 6F (LCD MODE) to "09" using the adjustment remote controller and set the LCD display to AE data display mode.
- 3) Attach the ND 13 filter.
- 4) Measure the EV data on the LCD display and write that value to adjustment address 48.
- 5) Remove the ND 13 filter and attach the ND 40 filter.
- 6) Measure the EV data on the LCD display and write that value to adjustment address 49.
- 7) Remove the ND 40 filter.

4-2-26. Auto focus adjustment

A. MIN DET gain adjustment (FCA PWB)

Subject	Color bar chart standard picture frame All white (Zoom position is the same)
Filter	ND 0.3
Measuring point	Video jig LCD display AF estimation value data
Measuring instrument	Video jig LCD
Adjustment address	37 (MIN DET GAIN)
Specified value	0001 – 0006

Adjusting method:

- 1) After setting the color bar chart in the picture frame, use the adjustment remote controller to hold adjustment address 30 (ADJUST MODE) to "01" and focus.
- 2) Set adjustment address 6F (LCD MODE) to "0A" and set the LCD display to AF data display mode.
- 3) Read the last column of the AF status data (hexadecimal) and checking that it is either 7, 8, 9 or B, hold adjustment address 30 to "40".
- 4) Remove the color bar chart and shoot the all white chart without changing the zoom position.
- 5) Attach the ND 0.3 filter, and read the first 2 columns of the AF estimation value data (hexadecimal).
- 6) Change the data of adjustment address 2E (DET GAIN), and adjust the AF estimation data to within the 0001 – 0006 range.
- 7) Write the adjustment address 2E data to adjustment address "37".
- 8) Remove the ND 0.3 filter.

* Because the AF estimation value data always fluctuates, adjust so that the middle of the fluctuation range is within the specified limits.

B. DET gain adjustment (FCA PWB)

Subject	AF chart
Measuring point	Video jig LCD display AF estimation value data
Measuring instrument	Video jig LCD
Adjustment address	2E (DET GAIN)
Specified value	007D – 0083

Adjusting method:

- 1) After doing the MIN DET adjustment, shoot the AF chart without changing the zoom position.
- 2) Read the AF estimation value data on the LCD display.
- 3) Change the data of adjustment address 2E (DET GAIN) using the adjustment remote controller, and adjust the AF estimation data to within the 007D – 0083 range.
- 4) Write the adjustment data to adjustment address 2E.

4-2-27. PLL adjustment (FCA PWB)

Subject	—
Measuring point	TL157
Measuring instrument	Digital Voltmeter
Adjustment element	CT50
Specified value	2.5 ± 0.1 V

Adjusting method:

- 1) Adjust to 2.5 ± 0.1 V with CT50.

4-2-28. EVR final setting

After the various camera adjustments have been completed, please do the final setting of the stated adjustment addresses.

Adjusting method:

- 1) Write the data in the final setting data column of Table 4-7 in section 4-2-1. EVR initial setting using the adjustment remote controller to each of the indicated adjustment addresses.

* Refer to the section 4-1-5 2) Precautions on the use of the adjustment remote controller.

5. Mechanical Adjustments

Mechanical adjustment notes

Refer to the separate "8mm Video Mechanical Adjustment Manual II **FL mechanism (Q mechanism)**" for details on mechanical adjustment, check and parts replacement.

This model has a different drum installed but the adjustment method and marks remain the same.

A-7049-197-A	Rotary upper drum assembly DGH-37-R (1)
A-7049-198-A	Rotary upper drum assembly DGH-37-R (2)

Follow the items below.

5-1. Tape Path Adjustment

- 1) Clean the tape path surface (tape guide, drum, capstan shaft and pinch roller).
- 2) Short circuit TP2 on the FSW PCB, set the power supply SW to the VTR position and set the menu SW to the ON position.
- 3) Connect the oscilloscope.

Channel 1 : The FSS PCB CN853
pin ② PB RF CH2

External trigger : The FSS PCB CN853
pin ④ RF SWP

- 4) Play back the tracking alignment tape (WR2-1NP). Set the Memory/Play SW to the ON position and shift 1/4.
- 5) Check that the RF waveform on the oscilloscope at both the entrance and the exit side are flat.

If the RF waveform is not flat, consult the separate "8mm Video Mechanical Adjustment Manual II

FL mechanism (Q mechanism)".

FSS PWB CN853

1	PB RF CH1
2	PB RF CH2
3	REC C RF
4	RF SWP
5	1/2 RF SWP
6	REC 1A CHECK
7	REC 1B CHECK
8	REC 2A CHECK
9	REC 2B CHECK
10	R/P GND
11	REC Y RF
12	PB RF

6 Video Block Adjustments

6. Video Block Adjustments

Refer to the adjustment parts arrangement diagram on page 61 when doing adjustments.

6-1. Pre-adjustment Preparations

Use the measuring instruments listed below.

6-1-1. Necessary equipments and jigs

- 1) Monitor TV
- 2) Dual trace oscilloscope of over 10MHz band, incorporating delay function. (Use 10:1 probe unless otherwise specified.)
- 3) Frequency counter
- 4) Pattern generator with video output terminal.
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Regulated power supply
- 11) Alignment tapes

Tracking adjustment (WR5-1N)

Parts Code: 8-967-995-01

Video frequency characteristics adjustment (WR5-6N)*1

Parts Code: 8-967-995-12

Operation check
(WR5-4NL)*²

Parts code: 8-967-995-51

(WR5-4NSP)*³

Parts code: 8-967-995-41

Note: *1 WR5-2N (8-967-995-11) is also available.

*2 WR5-3NL (8-967-995-31) is also available.

*3 WR5-5NSP (8-967-995-42) is also available.

- 12) Adjustment remote controller
- 13) Vectorscope
- 14) Waveform monitor
- 15) Jig harness

6-1-2. Connecting the equipments

Use extended flex to connect the various PWB connectors.

Note: Connect all the interfaces and continue as if taking an 8 mm movie.

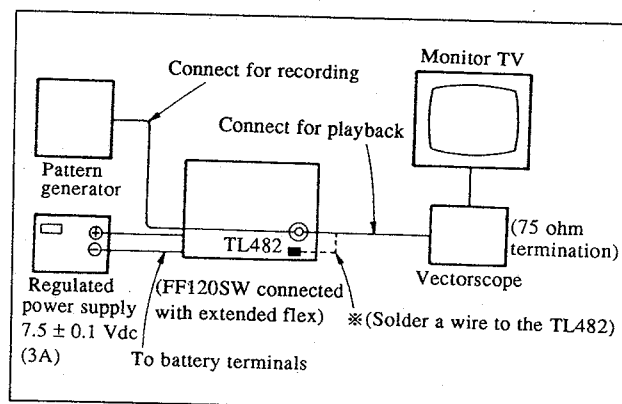


Fig. 6-1

* It is possible to view the video system output with line input recording (even CAM E-E) by soldering the lead line to TL482.

6-1-3. Notes on adjustment

- Video block adjustments should be done after connecting the adjusted FEV PWB.

6-1-4. Setup for adjustment

It is important that the video output signal of the pattern generator meets specifications since it is used as the adjusting signal for electrical adjustment. Connect the oscilloscope to TL451 and make sure that the amplitude of the video SYNC signal is approximately 0.3 V, that the amplitude of the video image is approximately 0.7 V, that the amplitude of the burst signal is approximately 0.3 V with flat characteristics and that the signal level ratio between the burst signal and the "Red" signal is 0.30 : 0.66. The video signal (color bars) used for electrical adjustment is shown in Fig. 6-2.

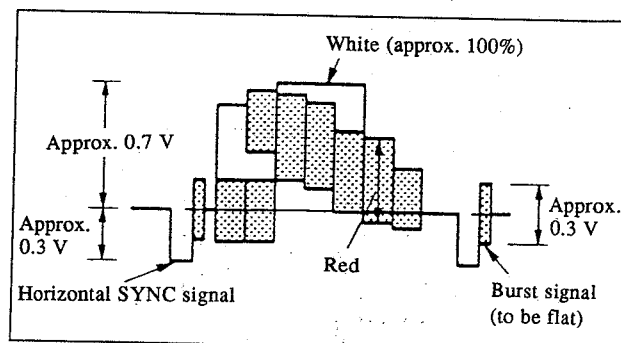


Fig. 6-2 Pattern generator color bars signal

6 Video Block Adjustments

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6-1-5. Alignment tapes

The following alignment tapes are available.
Use the tape indicated in the signal column of each adjustment.

If no type is indicated in the signal column, use any tape for operation check.

TAPE	REC MODE	TAPE TYPE	TAPE SPEED	REC mode		USE
				Video area	PCM area	
Tracking WR5-1N	L	MP	SP	CH2: 1 MHz tape path adjustment signal		Tape path adjustment
Video Frequency characteristics WR5-6N	L	MP	SP	RFsweep 0~10 MHz Marker 1, 3.58, 5.5, 7 MHz		Frequency characteristics adjustment
Operation check (SPmode) WR5-4NSP or WR5-5NSP	L	MP	SP	- Video signal Color bar: 4 min. Monoscope: 4min. - Audio signal (AFM) 400 Hz, 60% modulation	Audio signal (PCM) Monoscope: 20 Hz 20sec 400 Hz 20sec 14 kHz 20sec Color bar: 1 kHz 4 min. Repeat 4 times	Operation check
Operation check (LPmode) WR5-4NL	L	MP	LP	- Video signal Color bar: 4 min. Monoscope: 4 min. - Audio signal (AFM) 400 Hz, 60% modulation		

Note: Recording mode

L Conventional mode

Tape type

MP Particle type metal tape

Table 6-1

75% color bar signal recorded on an alignment tape is shown in Fig. 6-3.

Note: Measured at VIDEO I/O terminal.
(75 ohms termination)

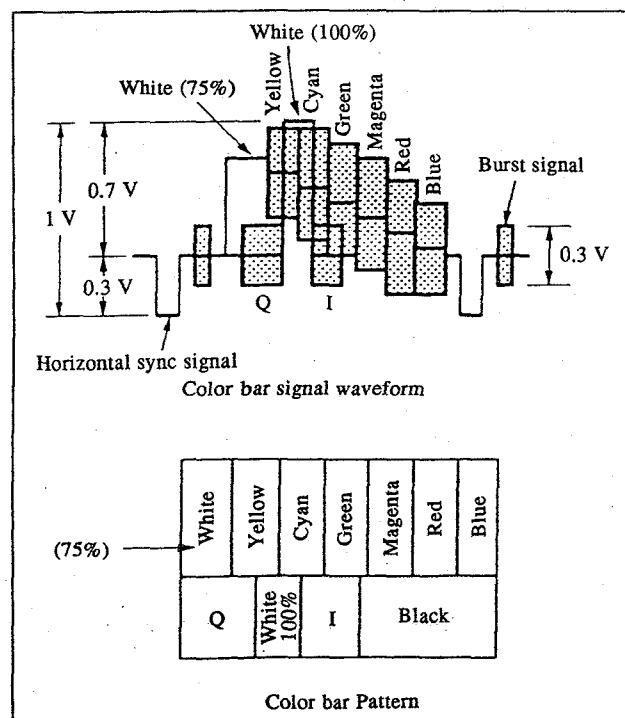


Fig. 6-3 Alignment tape color bar signal

6-1-6. Output level and impedance

Video output Pin jack

Output signal: 1 Vp-p, 75 ohms unbalanced, negative sync

Audio output Pin jack

Specified output: -7.5 dBs

Output impedance: 2.2 kohms or less

6 Video Block Adjustments

6-2. Power Supply Block Check

6-2-1. Power supply check (FSS PWB)

Mode	Power ON Vin=6 V
Measuring instrument	Digital voltmeter
VIDEO 5 V	
Measuring point	TP1105
Specified value	5.05 ± 0.05 V
SS 5 V	
Measuring point	TP1114
Specified value	5.05 ± 0.1 V
EVF 5 V	
Measuring point	TP1108
Specified value	5.0 ± 0.5 V
EVER 5.0 V	
Measuring point	TP1117
Specified value	5.0 ± 0.2 V

Checking method:

- 1) Each power supply voltage should meet the specified value.

6-3. System Control Adjustment

6-3-1. Battery down adjustment (DC/DC CONVERTER, FDC-4 PWB)

Mode	Camera recording
Signal	Arbitrary
Measuring instrument	Digital voltmeter
Specified value	Pre-end 5.8 ± 0.01 V End 5.6 ± 0.01 V

Note: This adjustment should be done with the all PWB connected.

Connecting:

- 1) Connect the regulated power supply and the digital voltmeter as shown in Fig. 6-4.
- 2) Short circuit the FSW PWB TEST3.

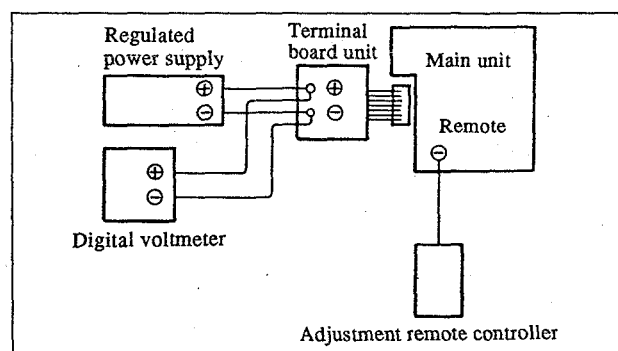


Fig. 6-4

Adjusting method:

- 1) Connect the adjustment remote controller to the remote terminal.
- 2) Send 7.5 ± 0.1 V voltage from the regulated power supply to the terminal board unit, set the camera switch to the camera mode position and start recording using remote commander RM-95B.
- 3) Set the adjustment remote controller HOLD switch to the HOLD position (service position).
- 4) Set the address to "4 of page 2" using the adjustment remote controller (-) or (+) and REW or FF switch.
- 5) Adjust the power until it becomes 5.8 ± 0.01 V on the digital voltmeter display.
- 6) Enter the data to memory using the adjustment remote controller PAUSE switch.
- 7) Set the address to "5 of page 2" using the adjustment remote controller FF switch.
- 8) Adjust the power until it becomes 5.6 ± 0.01 V on the digital voltmeter display.
- 9) Enter the data to memory using the adjustment remote controller PAUSE switch.

Checking method:

Disconnect the connection in connecting step 2) and do the following checks. If the specifications are not met, redo the adjustments.

- 1) Adjust the regulated power supply output voltage until the digital voltmeter display reads 6.2 ± 0.1 Vdc. (VTR in camera recording mode.)
- 2) Check that the battery mark on the EVF (viewfinder) is not lit.
- 3) Decrease the regulated power supply output voltage until the digital voltmeter display reads 5.8 ± 0.01 Vdc.
- 4) Check that the battery mark on the EVF (viewfinder) flashes at approximately 1 second intervals.
- 5) Decrease the regulated power supply output voltage until the digital voltmeter display reads 5.6 ± 0.01 Vdc.
- 6) Check that the VTR stops and the power turns OFF.

6-3-2. System clock adjustment (FSS PWB)

Note: Perform the adjustment with the lens removed.

Mode	Power ON
Measuring point	TP1142 (V CS)
Measuring instrument	Frequency counter (Measure the period)
Adjusting element	CV1101
Specified value	8192 ± 0.03 Hz

Adjusting method:

- 1) Short circuit FSW PWB TEST1 with the camera and VTR disconnected.
- 2) Set the TP1142 pulse frequency to 8192 ± 0.03 Hz.

6-4. Servo Adjustment

6-4-1. Capstan FG frequency adjustment (FSS PWB)

Mode	Recording (SP/LP)
Signal	Arbitrary
Measuring point	TP1241 (CAP FG)
Measuring instrument	Frequency counter
Specified value	SP mode: 1145.8 ± 3 Hz LP mode: 572.8 ± 3 Hz

Checking method:

- 1) Remove the CN372 pin and short circuit the TEST2 pin on the FSW PWB with a jumper wire. (Test mode)
- 2) Set the power SW to the CAMERA position.
- 3) Press the MENU key.
- 4) Set the power SW to PLAYER position.
- 5) Press SW1509 (SP mode set). (PAUSE KEY)
- 6) Set to recording mode by pressing SP/LP key and check that the capstan FG frequency is 1145.8 ± 3 Hz.
- 7) Press SW1502 (LP mode set). (MENU)
- 8) Set to recording mode by pressing SP/LP key and check that the capstan FG frequency is 572.8 ± 3 Hz.
- 9) Remove the jumper wire connected in step 1).

6-4-2. Capstan FG offset adjustment (FSS PWB)

Mode	Recording
Signal	Arbitrary
Measuring point	TP1241 (CAP FG)
Measuring instrument	Oscilloscope
Adjustment element	RV1201
Specified value	50 ± 1 % duty cycle

Checking method:

- 1) Adjust RV1201 so that the CAP FG output waveform duty cycle becomes 50 ± 1 %.

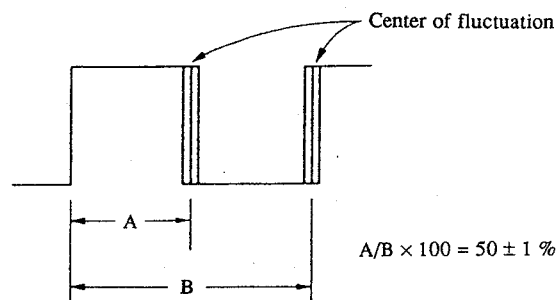


Fig. 6-5 Capstan FG offset adjustment

6 Video Block Adjustments

6-4-3. Drum phase lock check (FSS PWB)

Mode	Recording
Signal	Arbitrary
Measuring point	TP1164 (SYSTEM SYNC) TP1271 (RF SWP)
Measuring instrument	Oscilloscope
Specified value	$222 \pm 50 \mu\text{sec}$

Checking method:

- 1) Check that the interval between the switching point of TP1271 (RF SWP) and the rising edge of TP1164 (SYSTEM SYNC) is $222 \pm 50 \mu\text{sec}$.

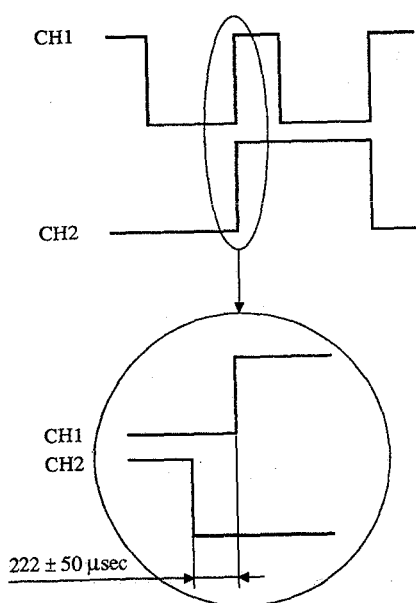


Fig. 6-6 Drum phase lock check

6-4-4. Switching position adjustment (FSS PWB)

Mode	Playback
Signal	Alignment tape for operation check (WR2-3CS)
Measuring point	CH1: CN853 pin ② CH2: CN853 pin ④ (RF SWP) (RP Amp)
Measuring instrument	Oscilloscope
Adjustment element	FF key, REW key
Specified value	$0 \pm 0.2H$ ($0 \pm 14 \mu\text{sec}$)

Connection:

- 1) Short circuit the TEST2 pin on the FSW PWB and set the power SW to VTR.
- 2) SET the standard tape [WR2-3CS].
- 3) Connect the probe to the test terminals of CN853 ② pin (PB RF CH2) and CN833 ④ pin (RF SWP) of RP section.
- 4) Press the PLAY key, and start [PB].
- 5) Set the power SW from VTR to CAM.
- 6) Adjust the SWP with the FF and REW keys.
- 7) Enter the data to the EEPROM with the STOP key.
- 8) Shift the SWP with either the FF or REW key.
- 9) Read the EEPROM DATA using the PLAY key.
- 10) Set the power SW from CAM to VTR.
- 11) Stop using the STOP key.
- 12) Remove the short from the TEST2.

Adjusting method:

- 1) Set to switching position adjustment mode and adjust to $0 \pm 0.2H$ ($0 \pm 14 \mu\text{sec}$) using the FF and REW keys.

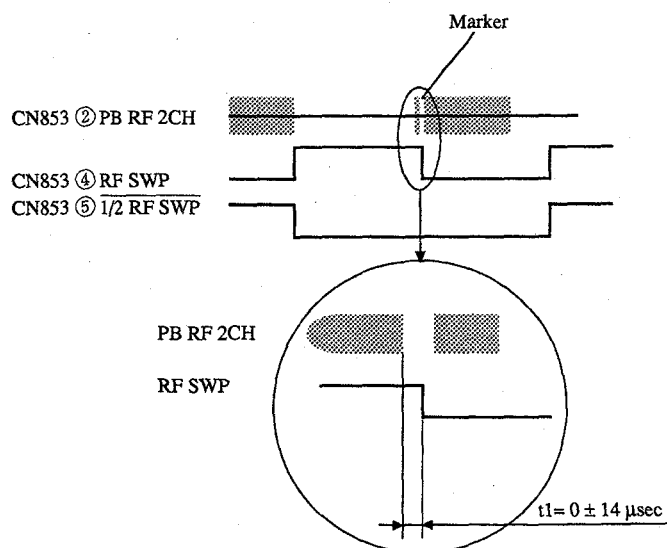


Fig. 6-7 Switching position adjustment

6 Video Block Adjustments

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6-5. Video Adjustment

The adjustment of the video system should be done following the adjustment procedure outlined below.

The color video signal supplied from the pattern generator is utilized as the video input signal for the video system adjustment in the recording mode. Make sure that the sync signal and the color burst signal match the specifications given in Set-up for adjustment, as shown in Fig. 6-2.

Adjusting procedure:

- 1) Playback frequency characteristics adjustment
- 2) Flying erase check
- 3) X'tal oscillator f₀ check
- 4) E-E level adjustment
- 5) IR adjustment
- 6) Y/C separation adjustment
- 7) Emphasis input level adjustment
- 8) PB Y level 1 adjustment
- 9) PB Y level 2 adjustment
- 10) Y FM carrier frequency adjustment
- 11) Y FM deviation adjustment
- 12) Chroma emphasis f₀ adjustment
- 13) REC C RF level adjustment
- 14) REC Y RF level adjustment
- 15) Chroma flicker check and adjustment
- 16) REC C current adjustment
- 17) PAL JOG burst phase adjustment
- 18) PAL JOG TH/DL adjustment
- 19) DDS character position adjustment

6-5-1. Playback frequency characteristics adjustment (FSS PWB)

Mode	Playback
Signal	Alignment tape : for frequency characteristics adjustment (WR5-6C: LOCKED SWEEP)
Measuring point	See Fig. 6-9
Measuring instrument	Oscilloscope
Adjustment element	RV852 (1A) RV856 (1B) RV854 (2A) RV858 (2B)
Specified value	3.58 MHz level : 5.5 MHz level = 3 : 2 (±0.3 dB)

Adjusting method:

- 1) Short circuit the TEST2 pin on the FSW PWB and set the power SW to VTR.
- 2) Adjust each RV so that the ratio of the 3.58 MHz level to the 5.5 MHz level of the PB RF output waveform becomes 3 : 2 (±0.3 dB) for 1A, 1B, 2A, 2B respectively.

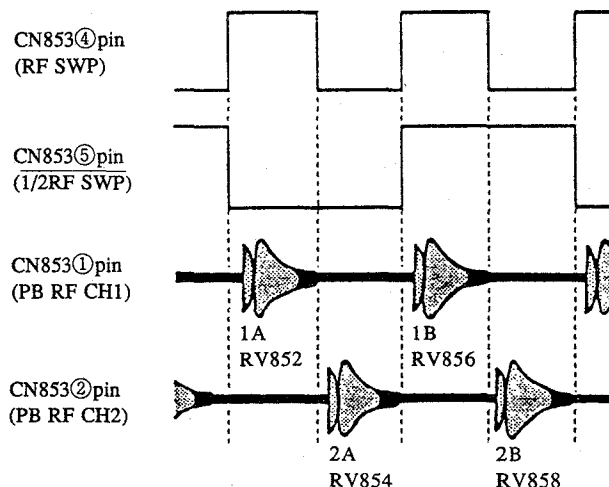


Fig. 6-8 Playback frequency characteristics adjustment

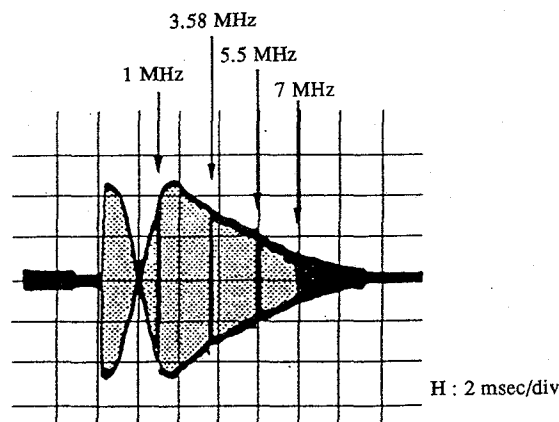


Fig. 6-9 Playback frequency characteristics adjustment

6 Video Block Adjustments

6-5-2. Flying erase check (FSS PWB)

Mode	Recording
Signal	Arbitrary
Measuring point	TL858 (FE (X)), TL892 (GND)
Measuring instrument	Oscilloscope and frequency counter
Specified value	Frequency: 7.8 ± 1.0 MHz Voltage: Greater than 7.0 Vp-p (MP)

Note: 1) Remove the FSS PCB shielding case.
2) Use a MP type tape.

Checking method:

- 1) Check that the oscillation frequency is above 7.8 ± 1.0 MHz and the oscillation voltage is over 7.0 Vp-p (MP).

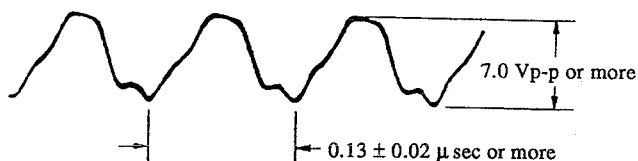


Fig. 6-10 Flying erase check

6-5-3. X'tal Oscillator fo check (FVA PWB)

Mode	Playback
Signal	Alignment tape for operation checking (WR5-4NSP)
Measuring point	TL486
Measuring instrument	Oscilloscope and frequency counter
Specified value	4433618.75 ± 50 Hz, 390 ± 100 mV

Note: Connect the frequency counter through a high impedance (approx. 10 Mohms), low capacitance (10 pF or less) buffer.

Adjusting method:

- 1) Check that the oscillation frequency at TL486 is 4433618.75 ± 50 Hz.
- 2) Check that the oscilloscope shows 390 ± 100 mV.

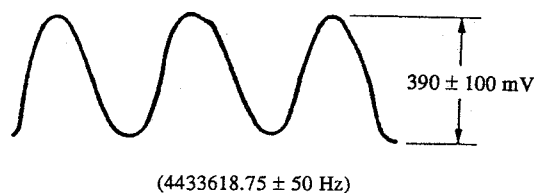


Fig. 6-11 X'tal Oscillator fo check

6-5-4. E-E level adjustment (FVA PWB)

Mode	Line E-E
Signal	Color bar
Measuring point	TL482 (Video out)
Measuring instrument	Oscilloscope
Adjustment element	RV455 (E-E level)
Specified value	$2V \pm 25$ mVp-p

Adjusting method:

- 1) Set the line IN/OUT selector to the right position (in position).
- 2) Press the AF key to EE mode.
- 3) Adjust to $2V \pm 25$ mVp-p with RV455.

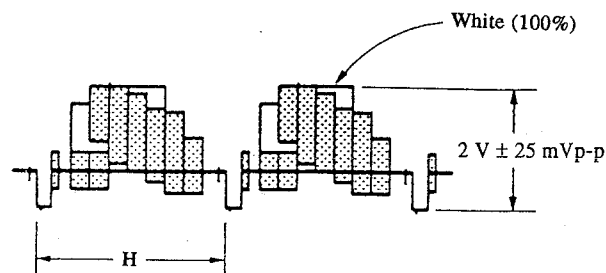


Fig. 6-12 E-E level adjustment

6-5-5. IR adjustment (FVA PWB)

Mode	Line E-E
Signal	Color bar
Measuring point	TL483
Measuring instrument	Oscilloscope
Adjustment element	RV458 (IR)
Specified value	Minimum residual chroma level

Stipulation:

Short circuit TL460 and TL462.

Adjusting method:

- 1) Adjust the residual chroma to a minimum with RV458. (Reference value 16 mVp-p)

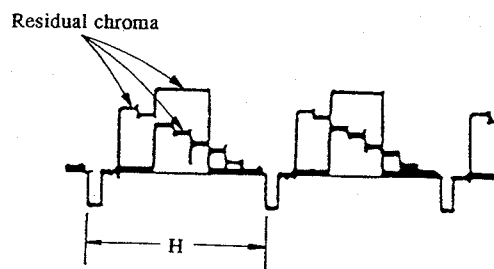


Fig. 6-13 IR adjustment

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6-5-6. Y/C separation adjustment (FVA PWB)

Mode	Line E-E
Signal	Color bar
Measuring point	TL484
Measuring instrument	Oscilloscope
Adjustment element	RV453 (Y/C separation) RV459 (C comb)
Specified value	Minimum residual chroma

Note: Adjust RV453 and RV459, then RV453 again.

Adjusting method:

- 1) Adjust the residual chroma until it reaches the minimum with RV453 and RV459.

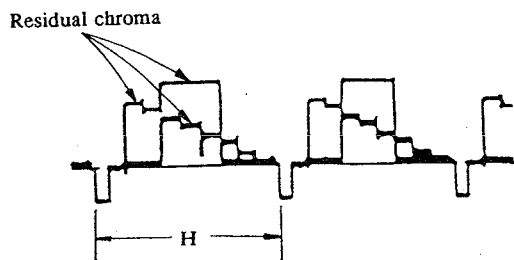


Fig. 6-14 Y/C separation adjustment

6-5-7. Emphasis input level adjustment (FVA PWB)

Mode	Line E-E
Signal	Color bar
Measuring point	TL463 (Y level)
Measuring instrument	Oscilloscope
Adjustment element	RV461 (Emphasis input level)
Specified value	500 ± 20 mVp-p

Adjusting method:

- 1) Adjust to 500 ± 20 mVp-p with RV461.

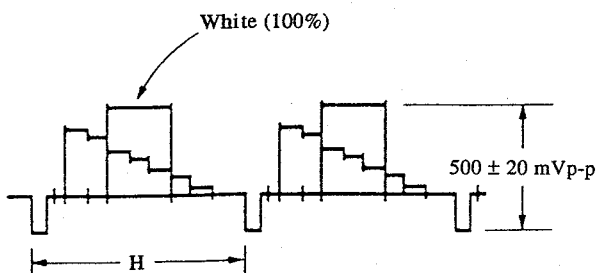


Fig. 6-15 Emphasis input level adjustment

6-5-8. PB Y level 1 adjustment (FVA PWB)

Mode	Playback
Signal	Alignment tape: for operation check (WR5-4CSP) Color bar section
Measuring point	TL488
Measuring instrument	Oscilloscope
Adjustment element	RV454 (PB Y level 1)
Specified value	0.50 ± 0.020 Vp-p

Adjusting method:

- 1) Press the AF key.
- 2) Adjust to 0.50 ± 0.020 Vp-p with RV454.
- 3) Be sure to do [PB Y level 2 adjustment] after doing [PB Y level 1 adjustment].

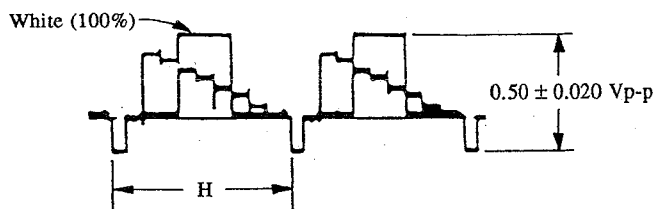


Fig. 6-16 PB Y level 1 adjustment

6-5-9. PB Y level 2 adjustment (FVA PWB)

Mode	Playback
Signal	Alignment tape: for operation check (WR5-4CSP) Color bar section
Measuring point	TL482 (Video out)
Measuring instrument	Oscilloscope
Adjustment element	RV460 (PB Y level 2)
Specified value	1.00 ± 0.025 Vp-p

- Note:**
- 1) Terminate the video I/O terminal at $75 \text{ ohms} \pm 1\%$.
 - 2) [PB Y level 1 adjustment] has been done.
 - 3) [Emphasis input level adjustment] has been done.

Adjusting method:

- 1) Adjust to 1.00 ± 0.025 Vp-p with RV460.

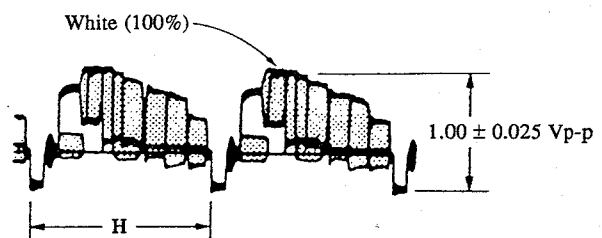


Fig. 6-17 PB Y level 2 adjustment

6-5-10. Y FM carrier frequency adjustment
(FVA PWB)

Mode	Line E-E
Signal	—
Measuring point	TL453
Measuring instrument	Frequency counter
Adjustment element	RV457 (Y FM carrier frequency)
Specified value	4.20 ± 0.04 MHz

Adjusting method:

- 1) Adjust to 4.20 ± 0.04 MHz with RV457.
- 2) Do [Deviation adjustment].

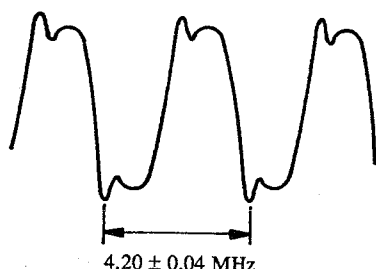


Fig. 6-18 Y FM carrier frequency adjustment

6-5-11. Y FM deviation adjustment (FVA PWB)

Mode	Line E-E
Signal	Color bar with 100% white
Measuring point	TL482 (Video out)
Measuring instrument	Oscilloscope
Adjustment element	RV456 (Y FM deviation)
Specified value	1.00 ± 0.05 Vp-p

- Note:** 1) [Emphasis input level adjustment], [PB Y level adjustment] and [Y FM carrier frequency adjustment] has been done.
2) Terminate with 75 ohms.

Adjusting method:

- 1) Press the AF key.
- 2) Record the color bar signal.
- 3) Playback the recorded signal.
- 4) Check the playback output.
Specified value: 1.00 ± 0.05 Vp-p
- 5) If the specified value is not met, repeat steps 1) through 3) after turning RV456.

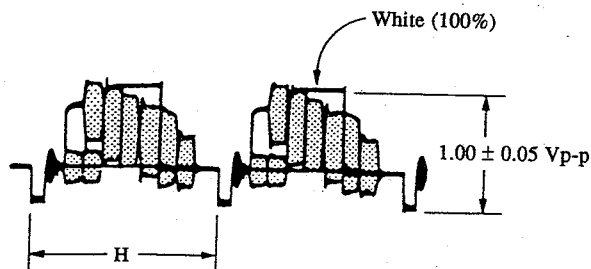


Fig. 6-19 Y FM deviation adjustment

6-5-12. Chroma emphasis fo adjustment
(FVA PWB)

Mode	Line E-E
Signal	Color bar
Measuring point	TL465
Measuring instrument	Oscilloscope
Adjustment element	FL454 (Chroma emphasis fo)
Specified value	Minimum fo component

Adjusting method:

- 1) Adjust the amplitude of the flat portion of the chroma signal to a minimum with FL454.

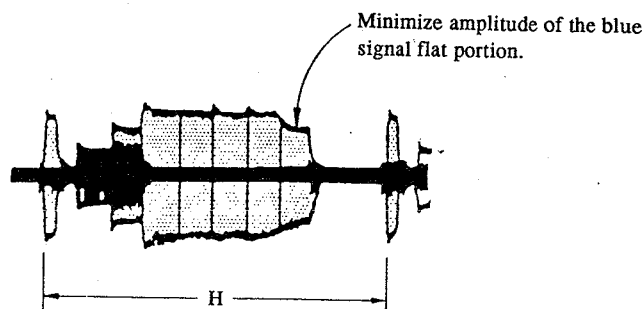


Fig. 6-20 Chroma emphasis fo adjustment

6-5-13. REC C RF level adjustment (FVA PWB)

Mode	Line REC
Signal	Color bar
Measuring point	TL452
Measuring instrument	Oscilloscope
Adjustment element	RV452 (REC C RF level)
Specified value	250 ± 10 mVp-p

Adjusting method:

- 1) Adjust the amplitude of the flat portion of the chroma signal burst level to 250 ± 10 mVp-p at with RV452.

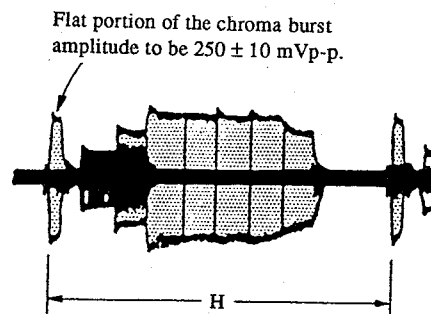


Fig.6-21 REC C RF level adjustment

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6-5-14. REC Y RF level adjustment (FVA PWB)

Mode	Line REC
Signal	—
Measuring point	TL451
Measuring instrument	Oscilloscope
Adjustment element	RV451 (REC Y RF level)
Specified value	150 ± 5 mVp-p

Adjusting method:

- 1) Adjust to 150 ± 5 mVp-p with RV451.

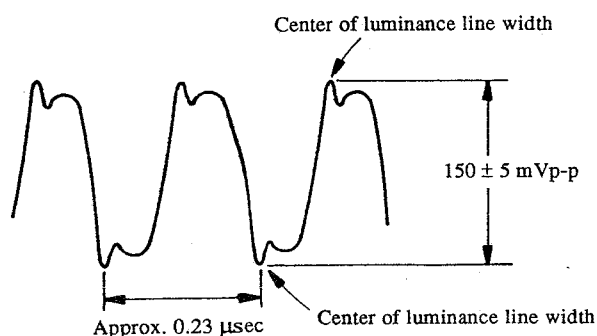


Fig. 6-22 REC Y RF level adjustment

6-5-15. Chroma flicker check and adjustment (FSS PWB)

Mode	Self recording/playback
Signal	Color bar
Measuring point	CH-1 (1:1 prove) : Q541 emitter (PB C RF IN) CH-2 (10 : 1 prove) : IC1206 pin ⑦ or CN 853 pin ⑤ (1/2 RF SWP)
Measuring instrument	Oscilloscope
Adjustment element	(1a) RV852 (1b) RV854 (2a) RV856 (2b) RV858
Specified value	$\frac{V_{c1a}}{V_{c1a'}} \times 100 = 100^{+12}_{-11} (\%)$ $\frac{V_{c1a}}{V_{c1a'}} \times 100 = 100^{+12}_{-11} (\%)$

Note: This adjustment assumes that both "REC C RF level adjustment" and "REC Y RF level adjustment" have been completed.

Checking Method:

- 1) Record the color bar signal.
- 2) Play back the recorded portion.
- 3) Let 1a, 2a, 1b and 2b output levels measured to be V_{c1a} , V_{c2a} , V_{c1b} , and V_{c2b} respectively.
- 4) If any of the specified values is not met, perform the following adjustment.

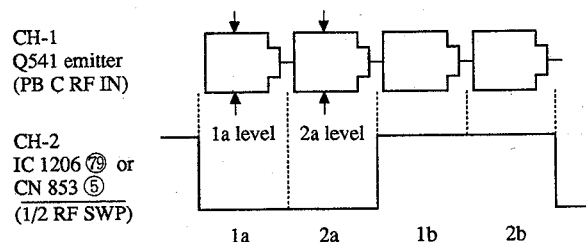


Fig.6-23 Chroma flicker check and adjustment

Stipulation:

- 1) Use the HG-DC tape.
- 2) Adjustment can be done at TEST 2 mode by removing the FCA PWB.

Adjusting Method:

- 1) If any of the specified values is not met, from the measured values, calculate the following values:

$$\Delta V_{c1} = |V_{c1a} - V_{c1b}| / 2$$

$$\Delta V_{c2} = |V_{c2a} - V_{c2b}| / 2$$

Note: | | represents an absolute value.

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2) Make the following calculations :

The smaller level of playback levels Vc1a and Vc1b is :

$$A = \left\{ \frac{(\text{Smaller value of } Vc1a \text{ and } Vc1b) + \Delta Vc1}{(\text{Smaller value of } Vc1a \text{ and } Vc1b)} \right\} \times 30.0 \text{ (mVp-p)}$$

The larger level of playback levels Vc1a and Vc1b is :

$$B = \left\{ \frac{(\text{Larger value of } Vc1a \text{ and } Vc1b) + \Delta Vc1}{(\text{Larger value of } Vc1a \text{ and } Vc1b)} \right\} \times 30.0 \text{ (mVp-p)}$$

The smaller level of playback levels Vc2a and Vc2b is :

$$C = \left\{ \frac{(\text{Smaller value of } Vc2a \text{ and } Vc2b) + \Delta Vc2}{(\text{Smaller value of } Vc2a \text{ and } Vc2b)} \right\} \times 30.0 \text{ (mVp-p)}$$

The larger level of playback levels Vc2a and Vc2b is :

$$D = \left\{ \frac{(\text{Larger value of } Vc2a \text{ and } Vc2b) + \Delta Vc2}{(\text{Larger value of } Vc2a \text{ and } Vc2b)} \right\} \times 30.0 \text{ (mVp-p)}$$

- 3) Let the values calculated from Vc1a, Vc1b, Vc2a and Vc2b to be the specified values for 1a, 1b, 2a, and 2b respectively. Based on these specifications, perform "REC C RF level adjustment".
- 4) After this adjustment, perform "Chroma flicker check" again and repeat this adjustment until the specifications are met.

6-5-16. REC C current adjustment (FSS PWB)

Mode	Recording
Signal	SIN wave of 732 kHz
Measuring point	Vc (1a) : TL865 Vc (1b) : TL866 Vc (2a) : TL872 Vc (2b) : TL875
Measuring Instrument	Oscilloscope
Adjustment element	(1a) RV852 (1b) RV854 (2a) RV856 (2b) RV858
Specified value	30.0 ± 2 mVp-p

Stipulation:

- 1) RP PB MODE shall be LOW.
- 2) Use the HG-DC tape.
- 3) Type shall be ME mode.
- 4) Use the TL890 for GND.
- 5) Make sure that "REC Y RF level Adjustment" have been completed.

Adjusting Method:

- 1) Connect TL882 to GND with a 0.1 μF ceramic capacity.
- 2) Connect TL886 to GND with a 0.1 μF ceramic capacity.
- 3) Input the SIN wave of 732 kHz, 200 ± 5 mVp-p to TL881.
- 4) Adjust each RV so that the output waveform of 1a, 1b, 2a and 2b become 30.0 ± 2 mVp-p.

6-5-17. PAL JOG burst phase adjustment (FVA PWB)

Mode	Playback
Signal	100% chroma (single color picture)
Measuring Point	TL486
Measuring Instrument	Vectorscope
Adjustment element	RV702
Specified value	135°

Adjusting method:

- 1) Playback the single color picture.
 - 2) Connect TL486 to the EXT REF input of the vectorscope via buffer, and set to external sync mode.
 - 3) Set EDIT to ON.
 - 4) Terminate TL482 with 75 ohms ± 1 %.
- Adjust the phase of the vectorscope so that the burst becomes 135°.
- 5) Set to PAUSE mode.
 - 6) Set EDIT to ON.
 - 7) Adjust RV702 so that the burst becomes 135°.

6-5-18. PAL JOG TH/DL adjustment (FVA PWB)

Mode	Playback
Signal	100% chroma (single color picture)
Measuring Point	TL486
Measuring Instrument	Vectorscope
Adjustment element	RV701
Specified value	180°

Adjusting method:

- 1) Playback the single color picture.
- 2) Short circuit TL499 to 5V.
- 3) Adjustment PHASE of vectorscope so that color phase becomes 180°.
- 4) Short circuit TL499 to GND.
- 5) Set to PAUSE mode.
- 6) Adjust RV701 so that color phase becomes 180°.

6 Video Block Adjustments

FF120SW REPAIR MANUAL

6-5-19. DDS character position adjustment (FVA PWB)

Mode	Line E-E
Signal	Color bar (Standard tape)
Measuring Point	Monitor TV or Viewfinder
Measuring Instrument	
Adjustment element	CT451
Specified value	See adjusting method.

Adjusting method:

- 1) Display the counter "0 : 00 : 0" on the monitor screen.
- 2) Adjust CT451 so that the center of the last two numbers "00" of counter display aligns to the border line between blue and black areas of the color bar.

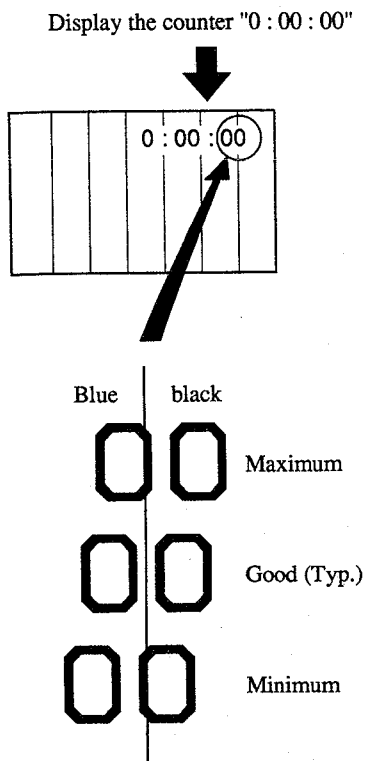


Fig.6-24 DDS character position adjustment

6-6. Audio System Adjustment

- Perform adjustment using the color bar signal as the video input signal.

[Connection of the audio measuring instruments]

In addition to the video system measuring instruments, connect the audio system measuring instruments as shown in the figure below, and set the power switch to the [VIDEO] position for adjustment. Set the I/O selector switch according to the mode as follows.

- Input position Recording mode
- Output position Playback mode

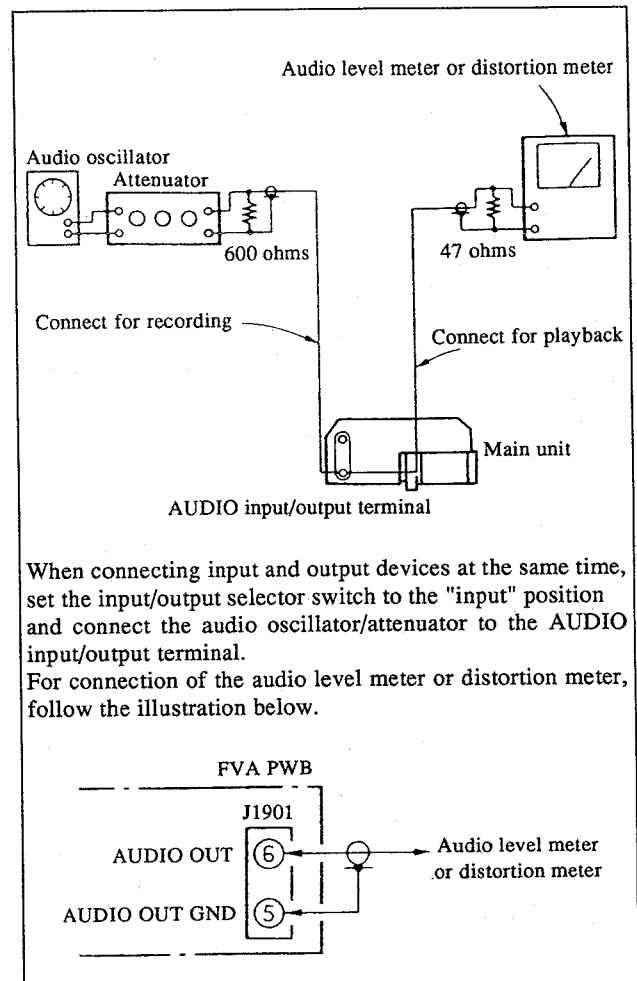


Fig. 6-25

6 Video Block Adjustments

6-6-1. fo adjustment (FVA PWB)

Mode	Playback
Signal	Alignment tape: for operation check (WR5-5CSP)
Measuring point	TL1813
Measuring instrument	Oscilloscope
Adjustment element	VR1801 (fo)
Specified value	The luminous line of the lowest frequency (1.44 MHz) and the highest frequency (1.56 MHz) are the same height.

Adjusting method:

- 1) Adjust the luminous lines of the RF PB signal lowest (1.44 MHz) and highest (1.56 MHz) frequencies so that they are the same height.

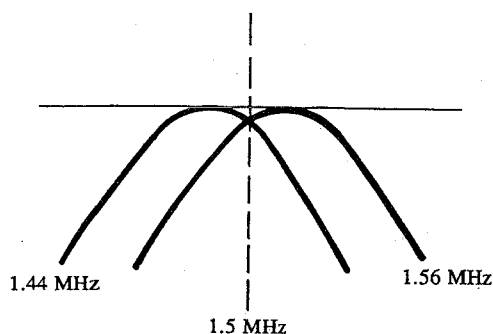


Fig. 6-26 fo adjustment

6-6-2. REC AFM carrier level check (FVA PWB)

Mode	Recording
Signal	None
Measuring point	TL1803 (REC AFM carrier level)
Measuring instrument	Oscilloscope
Specified value	48 ± 8 mVp-p

Adjusting method:

- 1) Check that the REC AFM carrier level is 48 ± 8 mVp-p at TL1803.

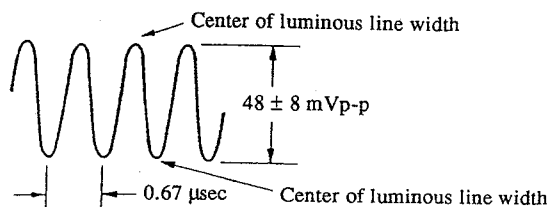


Fig. 6-27 REC AFM carrier level

6-6-3. AFM deviation adjustment (FVA PWB)

Mode	Playback
Signal	Alignment tape: for operation check (WR5-5CSP)
Measuring point	LINE OUT
Measuring instrument	Audio level meter
Adjustment element	VR1802 (AFM deviation)
Specified value	-7.5 ± 0.5 dBs

Adjusting method:

- 1) Adjust the audio output level to -7.5 ± 0.5 dBs with RV773.

6-6-4. E-E output level check (FVA PWB)

Mode	Line E-E
Signal	400 Hz, -7.5 dBs (at TL1809)
Measuring point	TL1811
Measuring instrument	Audio level meter
Specified value	-7.5 ± 2 dBs

Checking method:

- 1) The audio output level should be -7.5 ± 2 dBs.

6 Video Block Adjustments

FF120SW REPAIR MANUAL

6-6-5. Overall level characteristics check

Mode	Self-recording and playback
Signal	400 Hz, -7.5 dBs (at LINE IN)
Measuring point	LINE OUT
Measuring instrument	Audio level meter
Specified value	-7.5 ± 3 dBs

Adjusting method:

- 1) Record the signal.
- 2) Playback the recorded section.
- 3) Make sure that the audio output level is -7.5 ± 3 dBs.

Note: Terminate with 47 kohms.

6-6-7. Overall distortion check

Mode	Self-recording and playback
Signal	1kHz, -7.5 dBs (at LINE IN)
Measuring point	LINE OUT
Measuring instrument	Distortion meter
Specified value	Less than 0.8% ^{*1}

Checking method:

- 1) Record the signal.
- 2) Playback the recorded signal.
- 3) Make sure that the distortion is less than 0.8%.^{*1}

^{*1}: The value when a 200 Hz - 6 kHz 18 dB/oct BPF is used. When the filter is not being used, less than 1%.

Note: Terminate with 47 kohms.

6-6-6. Overall frequency characteristics check

Mode	Self-recording and playback
Signal	Ⓐ 400 Hz, -17.5 dBs Ⓑ 100 Hz, -17.5 dB Ⓒ 14 kHz, -17.5 dBs
Measuring point	LINE OUT
Measuring instrument	Audio level meter
Specified value	When the 400 Hz playback output level is 0 dB, the 100 Hz and 14 kHz playback output is 0 ± 3 dBs.

Checking method:

- 1) Record signals Ⓐ - Ⓒ, in that order.
- 2) Playback the recorded section.
- 3) Make sure that both the 100 Hz and 14 kHz playback output level are 0 ± 3 dB when the 400 Hz playback output level is 0dB.

Note: Terminate with 47 kohms.

6-6-8. Overall noise level check

Mode	Self-recording and playback
Signal	None (Insert a shorting plug into the audio input terminal)
Measuring point	LINE OUT
Measuring instrument	Audio level meter
Specified value	Less than -65.0 dBs ^{*2}

Checking method:

- 1) Record the signal.
- 2) Playback the recorded signal.
- 3) Make sure that the noise level is less than -65.0 dBs.^{*2}

^{*2}: When IHF-A hearing correction filter is used.

Note: Terminate with 47 kohms.

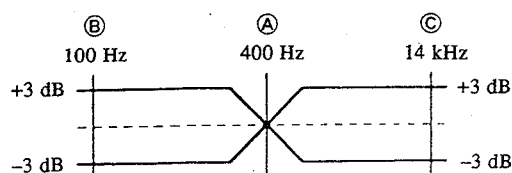


Fig. 6-28 Overall frequency characteristics

6 Video Block Adjustments

6-7. Electronic Viewfinder System adjustment

<Operational precautions>

- 1) Make sure the grid (orange) wire does not catch on the yoke clamp.
- 2) Make sure that the grid (black) wire does not get caught between the yoke clamp and the flyback transformer.
- 3) Make sure that the anode wire is not accidentally caught between the flyback transformer and the CRT socket and subjected to stress.

6-7-1. Horizontal tilt adjustment (EVF PWB)

Mode	Playback
Signal	Alignment tape: for operation check (WR5-4NSP) monoscope section
Specified value	See Fig. 6-29

Adjusting method:

- 1) Adjust the CRT to optimum brightness with RV3 (Brightness).
- 2) Loosen the yoke clamp.
- 3) Make the picture horizontal by rotating the yoke clamp.
- 4) Tighten the yoke clamp to 1.8 – 2.0 kg/cm. (Do not over-tighten)

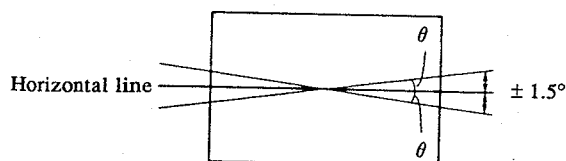


Fig. 6-29

6-7-2. Centering adjustment (EVF PWB)

Mode	Playback
Signal	Alignment tape: for operation check (WR5-4NSP) monoscope section
Specified value	See Fig. 6-31

Adjusting method:

- 1) Turn the centering rings until the upper, lower, right and left margins are even. (See Fig. 6-30, 6-31)

Note: The centering position is affected by terrestrial magnetism therefore make sure to turn the equipment horizontally 360 degrees and make adjustments at the orientation that exhibits median displacements of image.

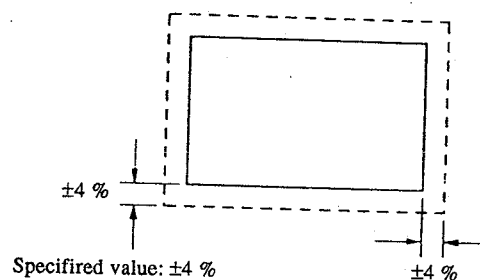


Fig. 6-31

6-7-3. Focus adjustment (EVF PWB)

Mode	Playback
Signal	Alignment tape: for operation check (WR5-4NSP) monoscope section
Adjustment element	RV4 (Focus)
Specified value	See adjustment method

Adjusting method:

- 1) Adjust to optimum focus with RV4 (focus adjustment VR). (See Fig. 6-30)

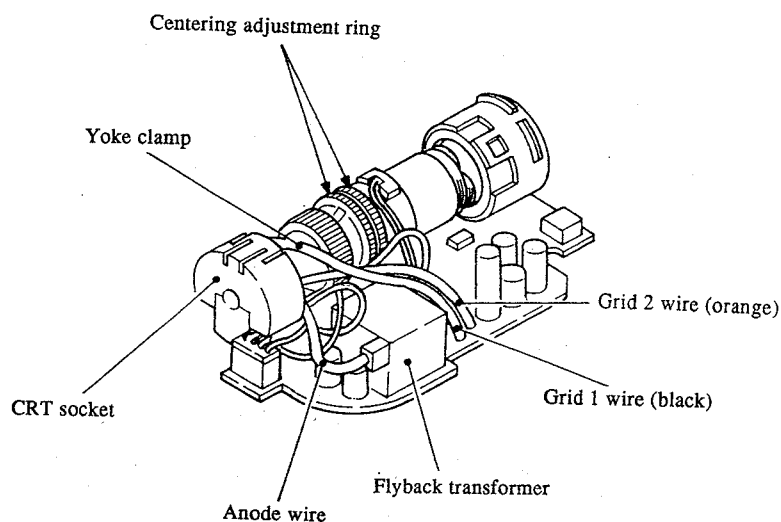


Fig. 6-30

6 Video Block Adjustments

6-7-4. Vertical amplitude adjustment (EVF PWB)

Mode	Playback
Signal	Alignment tape: for operation check (WR5-4NSP) monoscope section
Adjustment element	RV2 (Vertical amplitude)
Specified value	$\pm 2\%$

Adjusting method:

- 1) Turn RV2 and adjust for $\pm 2\%$ (upper and lower total) vertical overscan.

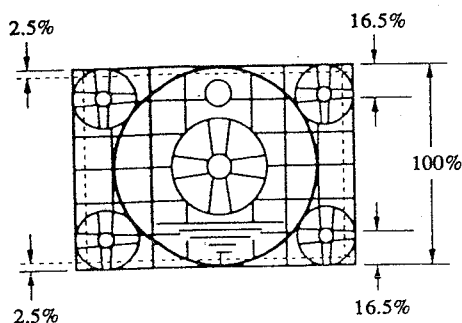


Fig. 6-32

6-7-5. Brightness, contrast adjustment (EVF PWB)

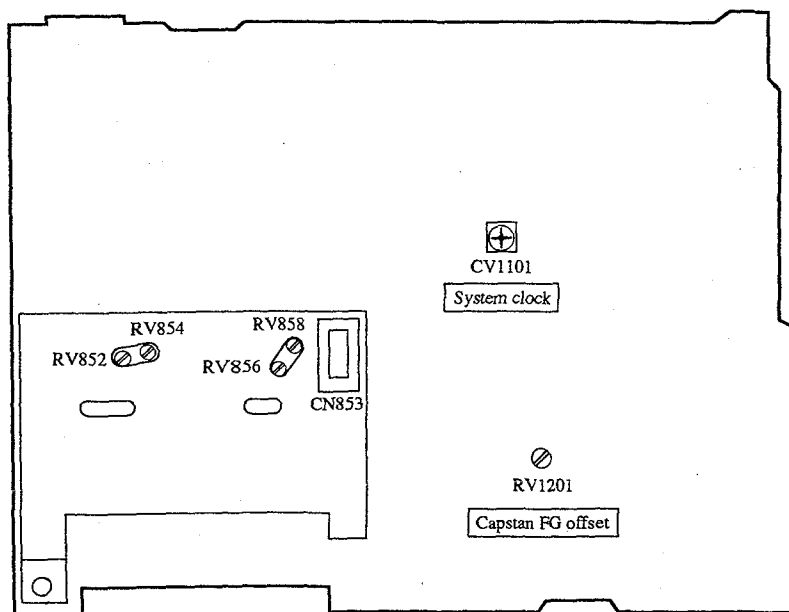
Mode	Playback
Signal	Alignment tape: for operation check (WR5-4NSP) monoscope and gray scale portions
Adjustment element	Brightness: RV3 (Brightness) Contrast: RV1 (Contrast)

Adjusting method:

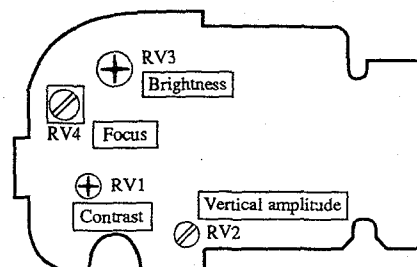
- 1) Alternately turn RV3 and RV1 until the dark and light areas of a gray scale are correctly displayed. (Make sure that the light areas are not excessively bright or they may cause a fuzziness in the monoscope circle cross-hatches. The brightness of the dark areas should be such that there is a discernible difference between the darkest shade and the next darkest shade.)

6-8. Adjustment Parts Arrangement Diagram

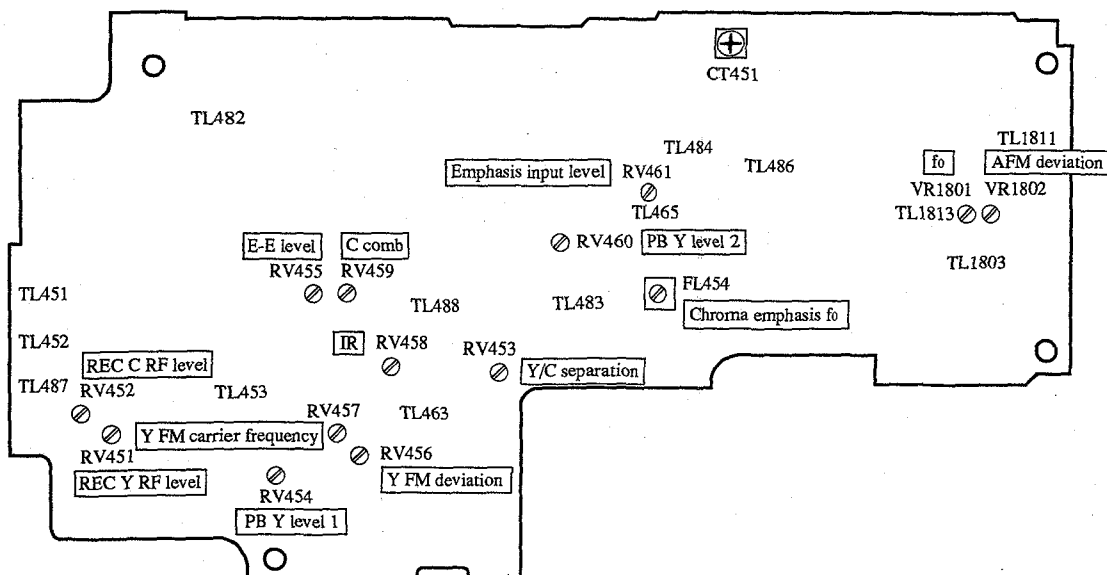
FSS PWB



EVF PWB



FVA PWB





FUJIX-8
VIDEO
SYSTEM

8

PARTS LIST

AE/UK Models

FUJIX-8 CAMCORDER

FF120SW

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splasher and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK Δ OR DOTTED LINE WITH MARK Δ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH FUJI PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY FUJI PHOTO FILM CO., LTD.

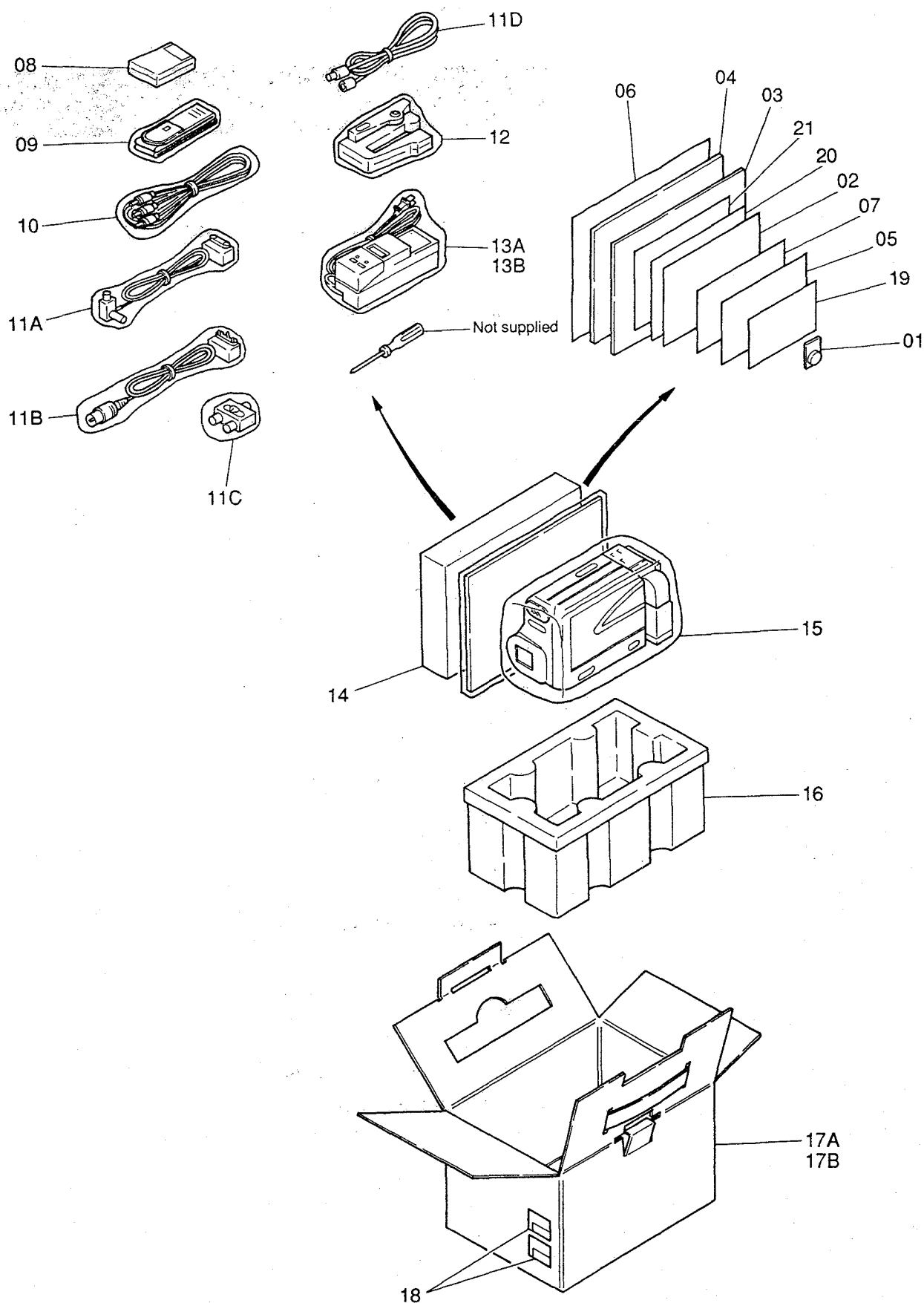
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1 Packing and Accessories

FF120SW PARTS LIST

1. Packing and Accessories



1 Packing and accessories

Ref.No.	Parts No.	Description	Supply	Price	Remark
01	FZ00027-100	BATTERY, LITHIUM, CR2025	N.S.	—	
02	BB01155-100	MANUAL, INSTRUCTIONS OPERATING, G201T		F	
03	BB01152-400	OWNER'S MANUAL 120E (UK)		J	
04	BB01152-500	OWNER'S MANUAL 120E2 (AE)		J	ONLY AE MODEL
05	BB01158-200	MANUAL, INSTRUCTIONS, ACF81		F	
06	AZF0000-121	BAG, PLASTIC		A	
07	BB01470-100	CAUTION, BATTERY, LITHIUM		A	ONLY AE MODEL
08	KF7962-9350	BATTERY, NP-55/2 (AE)	N.S.	—	F-7962-935-0
09	BB01149-100	BELT, SHOULDER		F	
10	G0000-15800	CORD, AV		D	1-574-039-41
11A	FZ00507-200	RF ADAPTER (RF-91), PAL		M	ONLY AE MODEL
11B	FZ00562-100	ADAPTER, RF-92		P	ONLY UK MODEL
11C	FZ00563-100	SELECTER, RF		J	ONLY UK MODEL
11D	FZ00564-100	CABLE, RF		G	ONLY UK MODEL
12	BU00107-200	GRIP ASSY, ACTION G201		P	
13A	FZ00453-400	AC POWER ADAPTER, AC-F81		T	ONLY AE MODEL
13B	FZ00453-500	AC POWER ADAPTER, AC-F81		T	ONLY UK MODEL
14	FZ00474-100	SUB CARTON		F	
15	BB01396-100	BAG, PROTECTION (STANDARD)		A	
16	FZ00472-100	CUSHION (LOWER)		C	
17A	FZ00471-400	INDIVIDUAL CARTON		G	ONLY UK MODEL
17B	FZ00471-900	INDIVIDUAL CARTON		G	ONLY AE MODEL
18	K3703-83401	LABEL, DOUBLE	N.S.	—	
19	BB01175-200	PAMPHLET, CASSETTE	N.S.	—	
20	BB01679-100	CAUTION, RF-92	N.S.	—	ONLY UK MODEL
21	BB01680-100	CAUTION, AC-F81	N.S.	—	ONLY UK MODEL

The parts listed on Ref. No. "20" and "21" should be deleted when the Parts No. of the Ref. No. "03" and "05" are changed to "BB01152-401" and "BB01158-201" respectively.

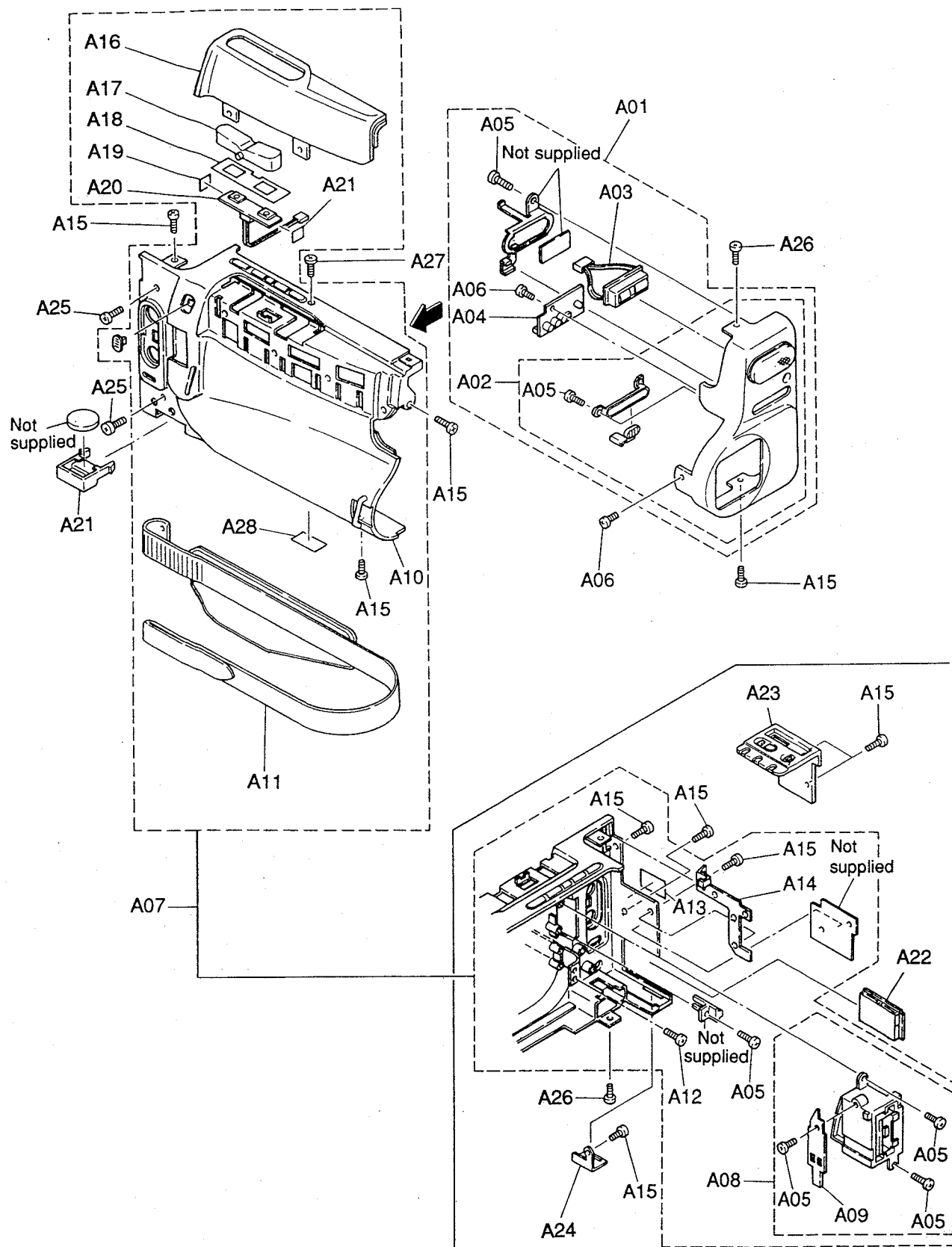
[N.S. : Not Supplied]

2 Mechanical Parts

FF120SW PARTS LIST

2. Mechanical Parts

A. CABINET (L) ASSEMBLY



Ref.No.	Parts No.	Description	Supply	Price	Remark
A01	BF00150-100	CABINET F ASSY		R	1-542-126-11
A02	BU00118-100	CABINET F(U) ASSY		M	
A03	K1542-12611	UNIT, MICROPHONE		G	
A04	CB0052-B202	FMC PWB ASSY		L	
A05	ATG2025-0ND	SCREW, 2P 2.0×5.0 B		A	
A06	ATG2026-0ND	SCREW, 2P 2.0×6.0 B		A	
A07	BF00146-400	CABINET L(E) ASSY		T	
A08	BF00008-200	FINGER REST ASSY U		G	
A09	CB0055-B201	FRC PWB ASSY		J	
A10	BB01081-100	CABINET L (E)		L	
A11	BB01148-300	BELT, STRAP (3)		G	
A12	BB00249-100	SCREW, FRANGE 2×6		A	
A13	BB00242-200	LABEL, BATTERY		A	
A14	BB00237-200	METAL FITTINGS, STRAP (A)		E	
A15	ATL2023-0ND	SCREW, 2P(2.0×3.0), NYLOCK		A	
A16	BB00232-200	CABINET G(U)		C	
A17	BB00247-101	BUTTON, ZOOM		A	
A18	BB00243-101	CUSHION (ZOOM)		A	
A19	BB00666-100	COVER (TERMINAL)		B	
A20	CB0055-C302	FZM PWB ASSY		K	
A21	BB00215-200	COVER, BATTERY CASE, LITHIUM		A	
A22	△ FZ00506-300	BATT TERMINAL ASSY		J	
A23	BU00119-300	CABINET U(U) ASSY		H	
A24	BB00238-200	METAL FITTINGS, STRAP (B)		B	
A25	ATL2028-0ND	SCREW, 2P(2.0×8.0), NYLOCK		A	
A26	ATL2025-0ND	SCREW, 2P(2.0×5.0), NYLOCK		A	
A27	ATA2024-0NC	SCREW, 2P 2×4		A	
A28	BB01059-100	LABEL, BEAB	N.S.	—	
					ONLY UK MODEL

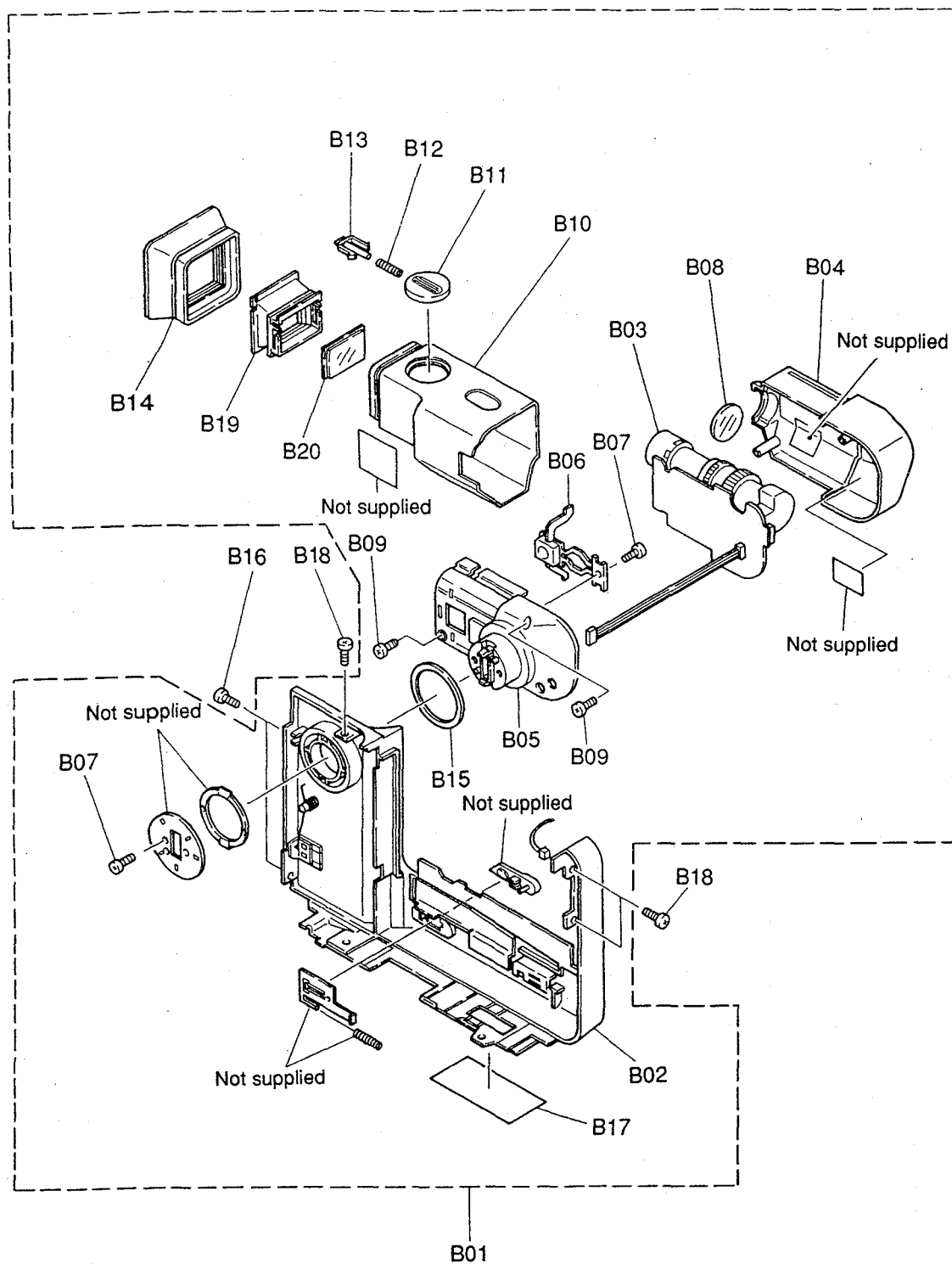
[N.S. : Not Supplied]

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

2 Mechanical Parts

FF120SW PARTS LIST

B. CABINET (R) ASSEMBLY

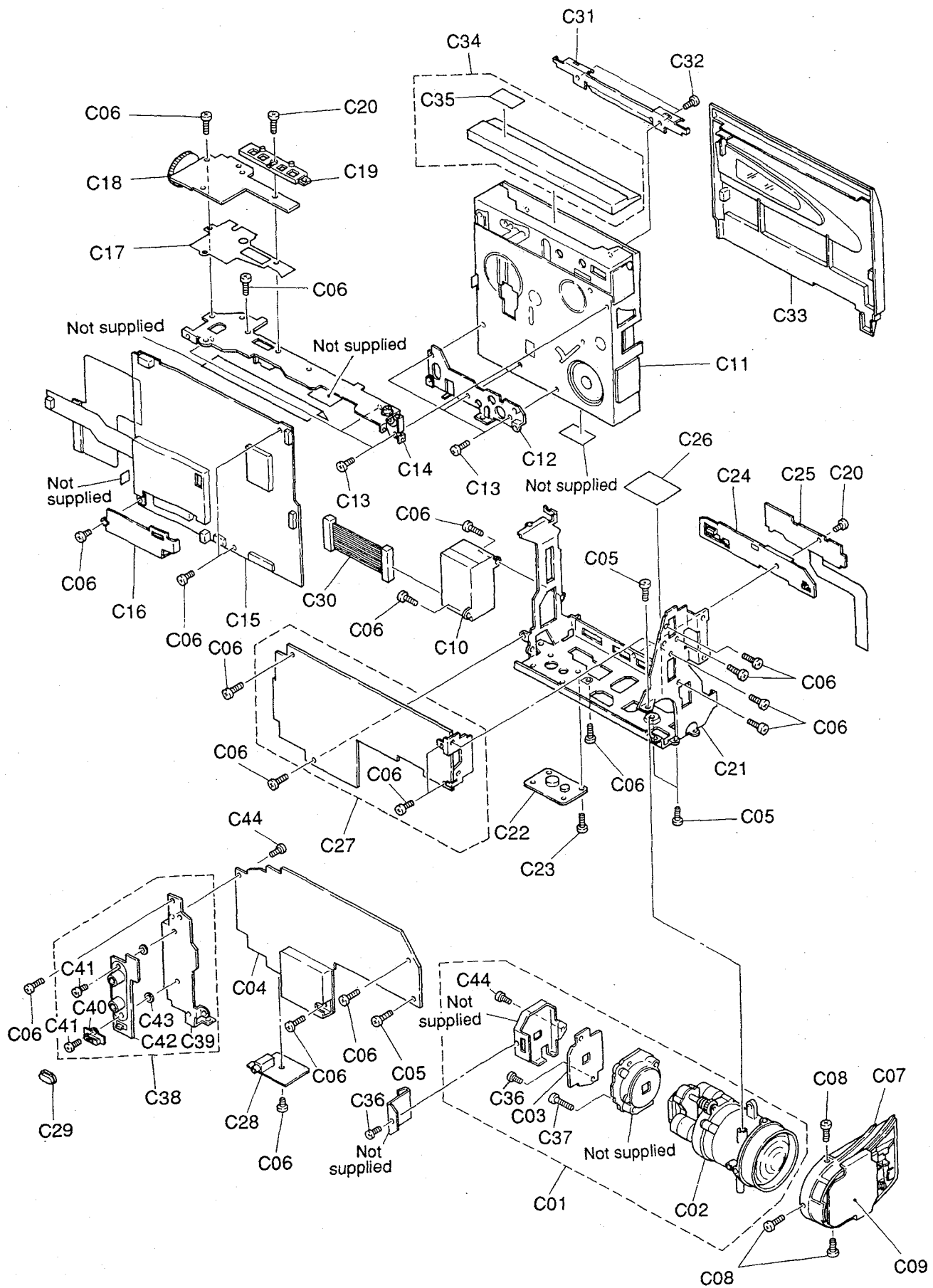


Ref.No.	Parts No.	Description	Supply	Price	Remark
B01	BF00147-400	CABINET, R(E), ASSY (E)		VJ	<Supplies only assembly>
B02	BU00129-301	CABINET, R(E), ASSY		L	
B03	BF00186-100	EVF, ASSY		VG	
B04	BB01085-100	FINDER, CABINET, RIGHT		A	
B05	BB01084-100	FINDER, CABINET, LEFT		A	
B06	BB01087-100	BUTTON, LOCK		A	
B07	ATG2026-0ND	SCREW, 2P 2.0×6.0 B		A	
B08	BB01098-100	FILTER, PROTECT		A	
B09	ATB2001-2ND	SCREW, P 2×12 B		A	
B10	BB01086-100	FRAME, SLIDE FINDER		B	
B11	BB00265-100	KNOB, LENS ADJUSTER		A	
B12	BB00266-100	LOCK PIN, LENS ADJUSTER		A	
B13	BB00267-100	SPRING, LENS ADJUSTER		A	
B14	BB01089-100	CUP, EYE		A	
B15	BB01097-100	WASHER		A	
B16	ATL2023-0ND	SCREW, 2P (2.0×3.0), NYLOCK		A	
B17	BB00220-501	PLATE, SERIAL NUMBER		A	
B18	ATA2024-0NC	SCREW, 2P 2×4 C		A	
B19	BB01091-100	FRAME, FINDER LENS		A	
B20	BB01099-100	FINDER LENS		A	

2 Mechanical Parts

FF120SW PARTS LIST

C. MAIN BOARDS AND CAMERA ASSEMBLIES



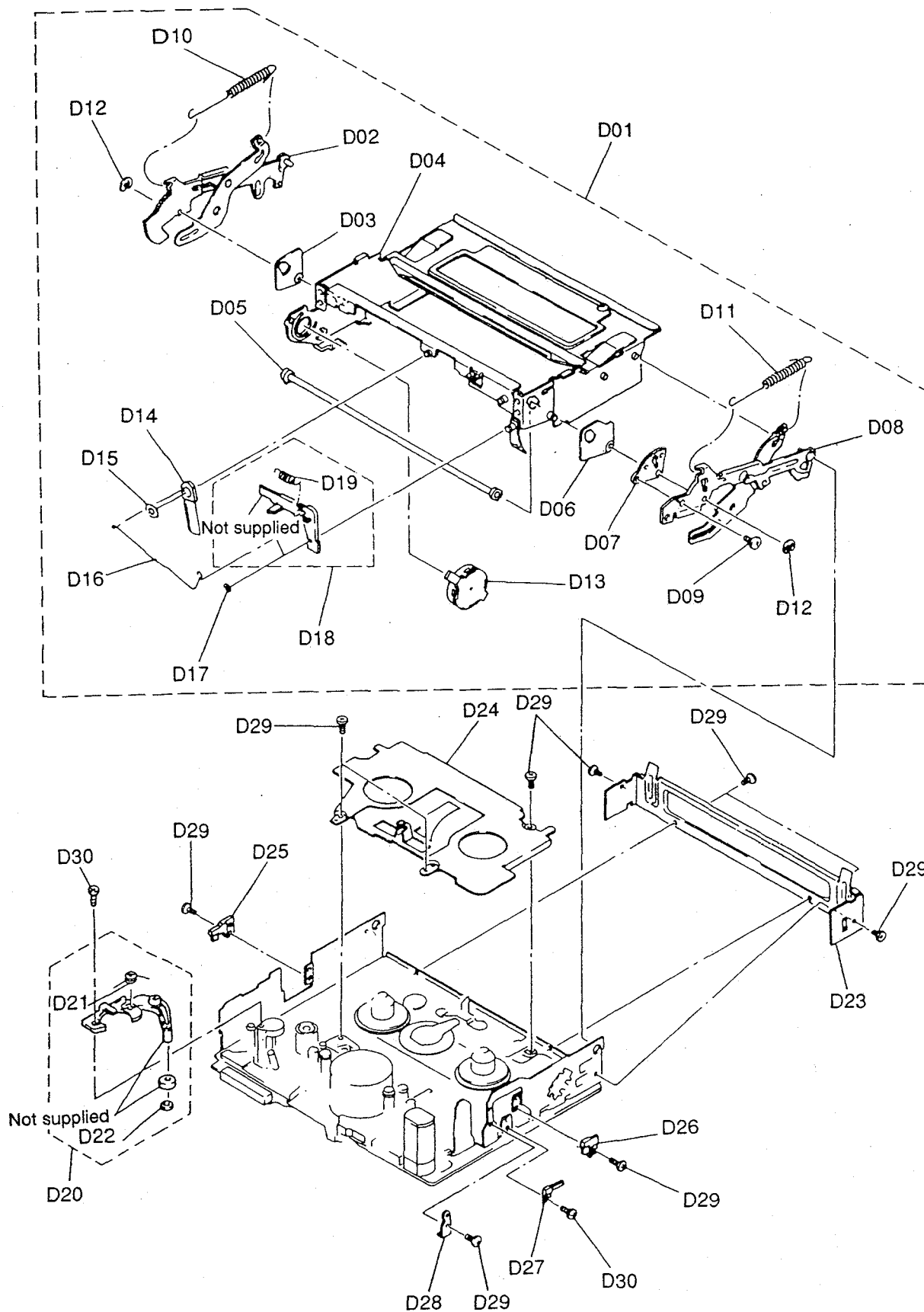
Ref.No.	Parts No.	Description	Supply	Price	Remark
C01	BF00144-200	LENS ASSY (U)		VH	
C02	FZ00244-300	1/3 X12 LENS (N)		VC	
C03	CB0054-B202	FCC PWB ASSY		M	
C04	CB0054-C103	FCA PWB ASSY		VF	
C05	ATG2026-0ND	SCREW, 2P 2.0x6.0 B		A	
C06	ATA2023-0NC	SCREW, 2P 2.0x3.0 C		A	
C07	BU00115-100	BARRIER, LENS, ASSY (U)		J	
C08	ATG1735-0NC	SCREW, 3P 1.7x5.0 C		A	
C09	BB00301-300	BARRIER, LENS (3)		F	
C10	△ FZ00430-103	DC-DC CONVERTER, KD-4B DC -9V,5V,15V		N	
C11	FZ00455-100	R/P COMPO., EVU-548, MECHA DECK		VP	
C12	BB01052-101	PLATE, MOUNT MD (U)		F	
C13	ATA1422-0NC	SCREW, 2P 1.4x2.0 C		A	
C14	BU00114-100	FRAME ASSY U, MD SUB		F	
C15	CB0052-C103	FSS PWB ASSY		VD	
C16	BB01111-100	R/P SHIELD CASE C		B	
C17	BB01055-101	SHEET, INSULATOR, FSW		A	
C18	DA0119-0100	FSW PWB ASSY (4U)		M	
C19	BB00576-102	COVER, FSW		A	
C20	ATA2024-0NC	SCREW, 2P 2.0x4.0 C		A	
C21	BB00281-102	MAIN FRAME MD		F	
C22	BB00282-300	SCREW, TRIPOD ASSY (3)		D	
C23	ATL2023-0ND	SCREW, 2P (2.0x3.0), NYLOCK		A	
C24	BB01076-100	HOLDER FEJ		A	
C25	CB0055-D401	FEJ PWB ASSY		J	
C26	BB00625-100	SHEET, 13-13		A	
C27	CB0053-B103	FVA PWB ASSY		VG	
C28	CB0054-C303	FEL PWB ASSY		M	
C29	BB00227-100	KNOB, IN/OUT		A	
C30	FZ00198-200	WIRE HARNESS WH-4, SO-SO 5P FDC-FBT		B	
C31	BB00697-100	HOLDER, COVER, CASSETTE		D	
C32	ATA1421-5NN	SCREW, 2P 1.4x1.5 N		A	
C33	BU00120-400	COVER, ASSY, CASSETTE		K	
C34	BU00121-100	COVER ASSY, LS		D	
C35	BB00470-300	LABEL, CAUTION (U)		A	
C36	ATA2022-5NC	SCREW, 2P 2.0x2.5 C		A	
C37	ATB2001-6ND	SCREW, BTP 2x16 B		A	
C38	BF00188-100	AV JACK ASSY (2)		K	
C39	BB00225-104	METAL, MOUNTING, RFU		B	
C40	BB00228-100	PLATE, GND		A	
C41	ATA1735-0NC	SCREW, 3P 1.7x5.0 C		A	
C42	CB0055-E502	FJA PWB ASSY		J	
C43	AWB2200-0BN	LOCK WASHER 2.0		A	
C44	ATA2023-0NC	SCREW, 2P 2.0x3.0 C		A	

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

2 Mechanical Parts

FF120SW PARTS LIST

D. CASSETTE COMPARTMENT HOLDER ASSEMBLY



Ref.No.	Parts No.	Description	Supply	Price	Remark
D01	A-7040-255-A	HOLDER ASSY (L), CASSETTE COMPARTMENT		M	
D02	X-3940-677-1	ARM ASSY (TAKE-UP) (L), F		D	
D03	3-728-145-01	BEARING, MIDWAY GEAR, T		A	
D04	X-3940-680-1	HOLDER ASSY (L), CASSETTE COMPARTMENT		H	
D05	X-3727-920-1	GEAR ASSY, MIDWAY		F	
D06	3-728-146-01	RETAINER (T), MIDWAY GEAR		A	
D07	3-739-808-01	PLATE, ARM ADJUSTMENT (2)		A	
D08	X-3940-678-1	ARM ASSY (S), F		D	
D09	3-728-126-01	SCREW, (M1.4×2), SPECIAL HEAD		A	
D10	3-739-872-01	SPRING, TENSION		A	
D11	3-739-873-01	SPRING, TENSION		A	
D12	7-624-102-04	RING, STOPPER E1.5		A	
D13	X-3739-809-1	DAMPER ASSY (2)		E	
D14	X-3940-991-1	PROTECTOR ASSY, T		B	
D15	3-749-304-01	WASHER, STOPPER		A	
D16	3-728-277-01	BAR, JOINT		A	
D17	3-331-007-11	WASHER		A	
D18	A-7040-164-A	ARM BLOCK ASSY, TP		A	
D19	3-509-127-00	SPRING, TENSION		A	
D20	A-7040-264-D	ROLLER BLOCK ASSY, HC		D	
D21	3-943-439-02	SPRING, TORSION		A	
D22	3-321-393-11	WASHER, STOPPER		A	
D23	3-943-055-01	FRAME (L), LS		B	
D24	3-942-924-01	BASE, LED (L)		B	
D25	3-727-954-01	HOLDER, SENSOR, T		A	
D26	3-727-957-01	HOLDER, SENSOR, S		A	
D27	1-572-611-11	SWITCH, LEAF (C LOCK)		A	
D28	3-727-946-01	SUPPORT, LS		A	
D29	3-728-103-11	SCREW, (M1.4×1.6), SPECIAL HEAD		A	
D30	3-728-148-11	SCREW, (M1.4×2.5), SPECIAL HEAD		A	

FF120SW PARTS LIST

This diagram is an exploded view of a mechanical assembly, likely a pump or engine component. It shows the following parts and their assembly relationships:

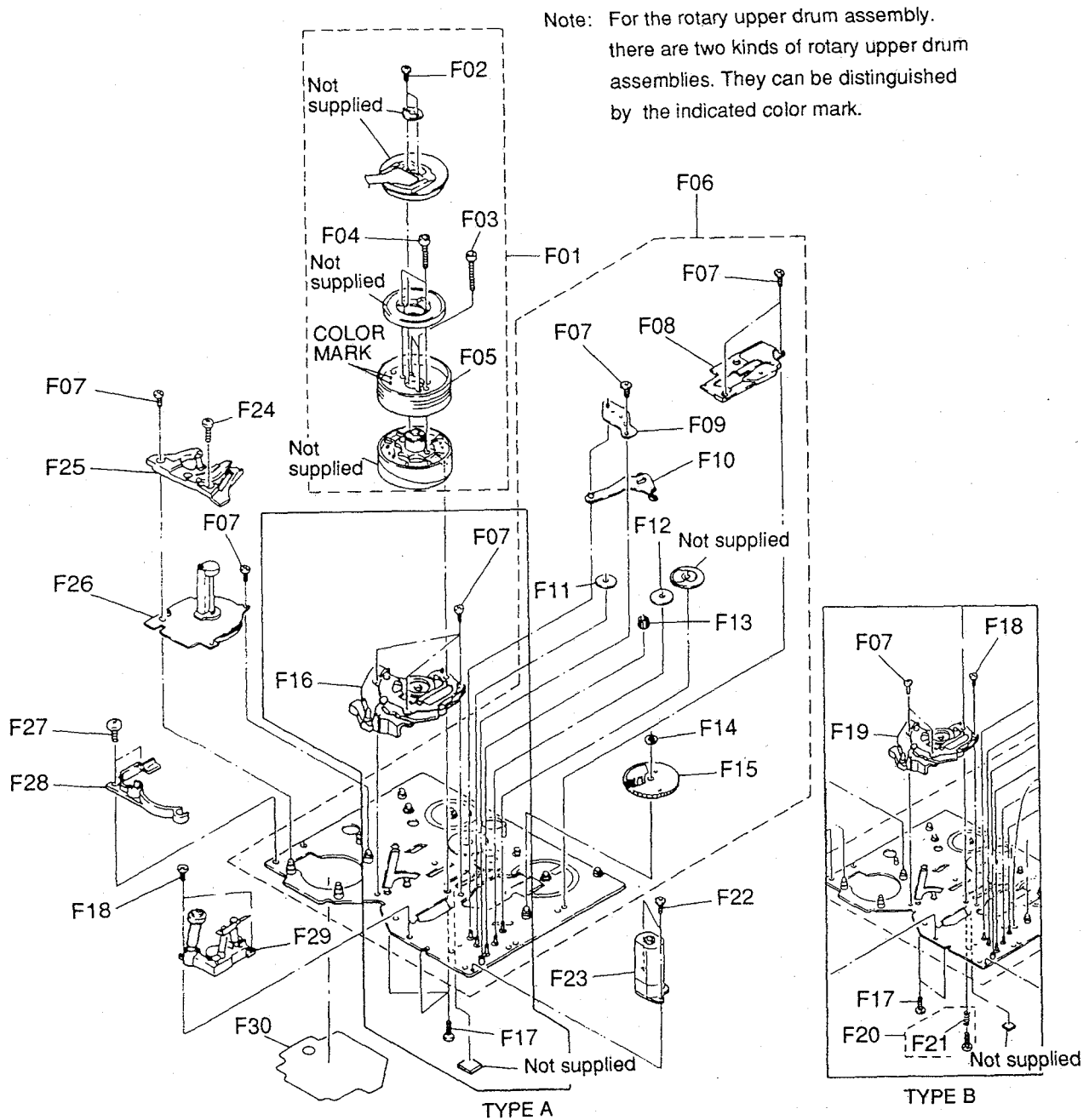
- Top Section:** Includes parts E37, E38, E36, E03, E39, E40, E41, E04, E12, and E42. E03 and E04 are mounted on a central shaft.
- Intermediate Section:** Features E02, E01, E09, E06, E08, E10, E55, E56, E07, E11, and E56. E02 is a large bracket-like component.
- Lower Section:** Includes E51, E49, E52, E12, E54, E25, E40, E12, E47, E12, E48, E36, E45, E46, E49, E14, E13, E15, E24, E26, E27, E29, E30, E28, E31, E32, E33, E34, E35, E22, E23, E20, E21, E19, E23, and E22.
- Assembly Notes:** Several areas are marked "Not supplied", indicating that certain components are not included in the kit. These are located near parts E43, E44, E43, E44, E19, E20, E21, E22, E23, E28, and E29.

Ref.No.	Parts No.	Description	Supply	Price	Remark
E01	3-739-807-01	SHAFT, FLEXIBLE ROTARY		A	
E02	1-627-722-11	FLEXIBLE BOARD, FP-149		F	
E03	X-3727-951-2	TABLE ASSY, REEL, T		G	
E04	3-701-439-11	WASHER, f3		A	
E05	A-7010-369-A	MD ASSY (1)		Q	
E06	A-7061-238-B	FLEXIBLE BOARD, FP-115		M	
E07	A-7085-012-A	FLEXIBLE BOARD, FP-115		L	
E08	1-571-647-11	SWITCH, PUSH		D	
E09	8-729-907-25	PT4850F		B	
E10	8-719-951-03	LED, GL453		B	
E11	3-732-046-01	HOLDER, LED		A	
E12	3-728-103-11	SCREW M1.4x1.6 SPECIAL HEAD		A	
E13	A-7040-258-A	SERVICE KIT, ARM ASSY, TG1		J	
E14	X-3749-001-1	ARM ASSY, TG1 (JD)		H	
E15	3-940-616-03	SPRING, TENSION (JD)		A	
E16	A-7040-240-A	ARM ASSY, PINCH (JD)		J	
E17	3-727-927-01	SPRING, TENSION (POWER TENSION)		A	
E18	A-7040-148-A	ARM ASSY, GUIDE, T		N	
E19	X-3727-940-1	ARM ASSY, GUIDE, T		F	
E20	X-3727-994-1	ROLLER BLOCK ASSY, TG8		J	
E21	X-3727-947-1	BASE ASSY, TG7		K	
E22	3-728-290-01	SLOTTED SET SCREW M1.2 (FLAT) T		A	
E23	3-331-007-11	WASHER		A	
E24	A-7040-263-A	RAIL ASSY, GUIDE, S		M	
E25	3-728-226-01	RAIL, GUIDE, S (JD)		A	
E26	A-7040-262-C	ARM BLOCK ASSY, GUIDE, S		M	
E27	3-943-822-01	FLANGE, UPPER, TG4		A	
E28	3-728-048-01	SLEEVE, TG4		B	
E29	3-728-023-01	SPRING, COMPRESSION		A	
E30	X-3727-936-2	BASE ASSY, TG4		H	
E31	3-728-053-01	PLATE, TG4, UNDER		A	
E32	X-3727-941-1	ARM ASSY, S, GUIDE		D	
E33	3-728-062-01	SPRING, BOARD, GGB		A	
E34	X-3940-733-1	ROLLER BLOCK ASSY, TG5		E	
E35	X-3727-948-1	BASE ASSY, TG6		J	
E36	3-728-091-01	WASHER, STOPPER		A	
E37	3-732-068-01	SPRING, RATCHET		A	
E38	X-3728-005-1	RATCHET ASSY, T		D	
E39	X-3727-926-1	ARM ASSY, GEAR		D	
E40	3-315-414-31	WASHER		A	
E41	X-3727-952-1	TABLE ASSY, REEL, S		H	
E42	X-3727-914-4	CLUTCH ASSY, ONE WAY		E	
E43	3-732-077-01	RATCHET, S		A	
E44	3-732-076-01	SPRING, TENSION		A	
E45	3-732-078-01	SPRING, (COIL)		A	
E46	3-732-079-01	ARM (JD), S SOFT		A	
E47	X-3940-675-1	BASE ASSY (L), RL		B	
E48	3-728-206-01	BOARD, CAM LS		A	
E49	3-941-601-01	SCREW M1.4x2.5 SPECIAL HEAD		A	
E50	3-732-089-01	SPRING, TENSION		A	
E51	A-7040-252-A	ARM BLOCK ASSY (L), TG11		F	
E52	3-727-939-01	SPRING, TORSION (JD)		A	
E53	3-732-085-01	SCREW M1.2x1.6 SPECIAL HEAD		A	
E54	3-728-244-01	RAIL, GUIDE, T		A	
E55	1-216-817-11	RESISTOR, CHIP 470		A	
E56	1-135-179-21	TANTALUM CAP, CHIP		B	

2 Mechanical Parts

FF120SW PARTS LIST

F. MECHANISM CHASSIS ASSEMBLY (1)

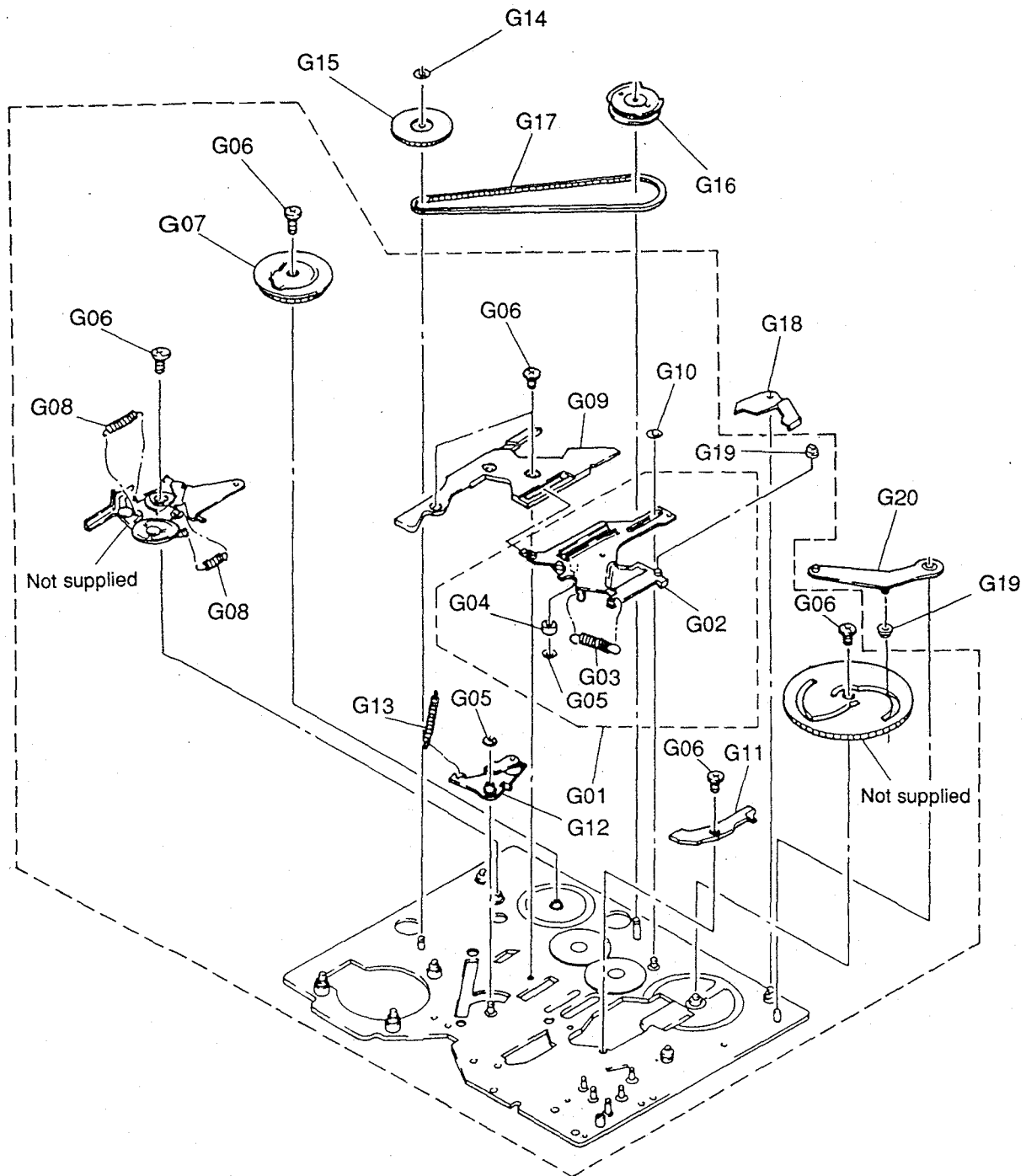


Ref.No.	Parts No.	Description	Supply	Price	Remark
F01	A-7048-214-A	DRUM ASSY (DGH-37A-R)		VF	
F02	3-728-108-41	SCREW M1.4x2.7 SPECIAL HEAD		A	
F03	3-727-809-01	BOLT, HEXAGONAL HOLE (M1.4x5)		A	
F04	3-727-807-01	BOLT, HEXAGONAL HOLE (M1.4x3.3)		A	
F05	A-7049-198-A	DRUM ASSY, UPPER, ROTARY (DGH-37-R-(2)) MARKING:RED,RED/RED,BLUE,BLUE/BLUE		VA	
	OR				
	A-7049-197-A	DRUM ASSY, UPPER, ROTARY (DGH-37-R-(1)) MARKING:GREEN,GREEN/RED,BLACK,BLACK/RED		VA	
F06	A-7040-253-A	CHASSIS BLOCK ASSY, MECHANISM		P	
F07	3-728-148-11	SCREW M1.4x2.5 SPECIAL HEAD		A	
F08	3-728-231-06	BESE, CAM, TG-1		A	
F09	3-728-119-01	RETAINER, GEAR		A	
F10	X-3727-906-1	ARM ASSY		C	
F11	X-3727-903-1	GEAR ASSY, NO.1		B	
F12	X-3727-904-1	GEAR ASSY, NO.2		B	
F13	3-728-149-01	NO.0 GEAR		A	
F14	3-325-290-21	WASHER, STOPPER		A	
F15	X-3727-915-1	GEAR ASSY, MODE		D	
F16	A-7040-222-D	BASE (M) ASSY, DRUM (TYPE A)		K	
F17	3-728-108-01	SCREW M1.4x4.5 P2		A	
F18	3-703-816-51	SCREW M1.4x3.5 SPECIAL HEAD		A	
F19	A-7040-203-C	BASE ASSY, DRUM (TYPE B)		K	
F20	X-3728-009-2	SCREW ASSY (TYPE B)		B	
F21	3-743-633-01	SPRING, COMPRESSION (TYPE B)		A	
F22	3-732-087-31	SCREW M1.4x1.8 SPECIAL HEAD		A	
F23	1-541-607-21	DC MOTOR (LA12G-344VA) (LOADING)		L	
F24	3-732-084-01	SCREW M1.4 SPECIAL HEAD		A	
F25	X-3941-027-1	BASE 3 ASSY, GUIDE RAIL		H	
F26	8-835-329-12	DC MOTOR U-21A (CAPSTAN)		P	
F27	3-728-126-01	SCREW M1.4x2 SPECIAL HEAD		A	
F28	3-732-064-01	COVER, ROTOR		A	
F29	A-7040-289-A	BASE 1 ASSY, GUIDE RAIL		K	
F30	3-942-901-01	COVER (L), CAPSTAN		A	

2 Mechanical Parts

FF120SW PARTS LIST

G. MECHANISM CHASSIS ASSEMBLY (2)



Ref.No.	Parts No.	Description	Supply	Price	Remark
G01	A-7040-153-A	SLIDER ASSY, GL		F	
G02	X-3727-942-1	SLIDER ASSY, GL		E	
G03	3-727-929-01	SPRING, TENSION		A	
G04	3-728-144-01	ROLLER, GL		A	
G05	3-331-007-11	WASHER		A	
G06	3-728-148-11	SCREW M1.4x2.5 SPECIAL HEAD		A	
G07	3-728-190-01	CAM B		B	
G08	3-728-065-01	SPRING, TENSION		A	
G09	3-728-228-03	SUPPORT (T), GL		A	
G10	3-315-384-31	WASHER, STOPPER		A	
G11	3-728-213-01	SUPPORT S, GL		A	
G12	X-3727-924-2	ARM ASSY, GUIDE LOCK		D	
G13	3-728-015-01	SPRING, TENSION (POWER TENSION)		A	
G14	3-728-091-01	WASHER, STOPPER		A	
G15	X-3727-930-1	GEAR ASSY, CONVERSION		B	
G16	X-3727-931-1	PULLEY ASSY, RELAY		B	
G17	3-728-212-01	BELT, RELAY		B	
G18	3-728-154-01	ARM, EJ		A	
G19	3-728-109-01	ROLLER, LS		A	
G20	3-941-980-01	ARM, (T), LS		B	

3 Electrical Parts

FF120SW PARTS LIST

3. Electrical Parts

NOTE:

The components indicated by mark **△** are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

• Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.

• RESISTORS

All resistors are in ohms
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable

• SEMICONDUCTORS

In each case, U: μ , for example:
UA...: μ A..., UPA...: μ PA..., UPB...: μ PB,
UPC...: μ PC..., UPD...: μ PD...

• CAPACITORS

MF: μ F, PF: μ μ F

• COILS

MMH: mH, UH: μ H

• -XX, -X mean standardized parts, so they may have some difference from the original one.

• On Price "N.S." means "Not supplied".

FCA

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
*****				C83	CTB10-336MA	TANTALUM CAP 33MF 6.3V 20% C A	
	CB0054-C103	FCA PWB ASSY U	VF	C84	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	*****				(1-162-970-91)		
	BB01492-100	WIRE #30-20	N.S.	C85	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A	
	BB00288-100	CASE, SHIELD (FCA) A	N.S.		(1-162-923-91)		
	BB00289-100	CASE, SHIELD (FCA) B	N.S.	C86	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A	
					(1-162-923-91)		
	----- CAPACITOR -----			C87	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A	
					(1-162-923-91)		
C50	FCT08-475MB	TANTALUM CAP 4.7MF 7V 20% A A		C88	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A	
	(1-135-181-XX)				(1-162-923-91)		
C51	FCA16-107MD	LEAD E.CAP 100MF 16V 20% A A		C90	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A	
C52	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-923-91)		
	(1-162-970-91)			C91	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C53	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-970-91)		
	(1-162-970-91)			C92	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A	
C54	FCT14-475ME	TANTALUM CAP 4.7MF 20V 20% X A			(1-164-634-91)		
				C93	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A	
C55	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-164-634-91)		
	(1-162-970-91)			C94	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C56	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-970-91)		
	(1-162-970-91)			C95	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C57	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A		C96	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C58	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-970-91)		
	(1-162-970-91)			C97	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C59	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A		C102	CCH01-560JC	CERAMIC CAP 56PF CH J 50V A	
C60	FCT08-684MG	TANTALUM CAP 0.68MF 35V 20% A A		C103	FCT08-474MG	TANTALUM CAP 0.47MF 35V 20% A A	
	(1-135-176-XX)				(1-135-145-XX)		
C61	FCT08-684MG	TANTALUM CAP 0.68MF 35V 20% A A		C104	FCT08-474MG	TANTALUM CAP 0.47MF 35V 20% A A	
	(1-135-176-XX)				(1-135-145-XX)		
C62	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C105	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C63	FCT14-225MC	TANTALUM CAP 2.2MF 35V 20% X A		C106	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C64	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-162-970-91)		
				C107	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C65	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A					
C66	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C108	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
	(1-162-970-91)			C109	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C67	CBH01-102KC	CERAMIC CAP 1000PF B K 50V A		C110	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A	
	(1-162-964-91)			C111	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C68	FCT08-475MB	TANTALUM CAP 4.7MF 7V 20% A A			(1-162-970-91)		
	(1-135-181-XX)			C112	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A	
C69	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-164-634-91)		
C70	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A		C113	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A	
	(1-135-177-XX)				(1-162-923-91)		
C72	CCH01-220JC	CERAMIC CAP 22PF CH J 50V A		C114	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A	
C74	CCH01-220JC	CERAMIC CAP 22PF CH J 50V A			(1-162-923-91)		
C75	CCH01-220JC	CERAMIC CAP 22PF CH J 50V A		C115	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A	
C76	CCH01-471JC	CERAMIC CAP 470PF CH J 50V A			(1-162-923-91)		
				C116	CBH01-102KC	CERAMIC CAP 1000PF B K 50V A	
C77	CCH01-471JC	CERAMIC CAP 470PF CH J 50V A			(1-162-964-91)		
C78	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C117	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A	
C79	CBH01-102KC	CERAMIC CAP 1000PF B K 50V A			(1-162-923-91)		
	(1-162-964-91)						
C81	CCH01-120JC	CERAMIC CAP 12PF CH J 50V A		C120	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
	(1-162-916-91)				(1-164-633-91)		
C82	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C121	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
	(1-162-970-91)				(1-164-633-91)		

FCA

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
C122	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C241	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A	
	(1-162-970-91)				(1-164-634-91)		
C125	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C242	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C127	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C243	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A	
C130	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-164-634-91)		
C131	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C244	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A	
	(1-162-970-91)			C245	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-162-970-91)				(1-162-970-91)		
C132	FCT08-475MB	TANTALUM CAP 4.7MF 7V 20% A A		C246	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
	(1-135-181-XX)			C247	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A	
C133	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-164-634-91)		
	(1-162-970-91)			C248	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C134	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C249	CBH01-102KC	CERAMIC CAP 1000PF B K 50V A	
C138	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-162-964-91)		
C140	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C250	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A	
	(1-162-970-91)						
C141	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C251	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C142	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-162-970-91)		
C143	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C252	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A	
	(1-162-970-91)				(1-135-177-XX)		
C144	CTB10-336MA	TANTALUM CAP 33MF 6.3V 20% C A		C253	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
	(1-135-162-91)			C254	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C145	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-162-970-91)		
	(1-162-970-91)			C255	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C147	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-162-970-91)		
C149	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A		C257	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-162-923-91)				(1-162-970-91)		
C150	CCH01-100DC	CERAMIC CAP 10PF CH D 50V A		C258	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-162-915-91)				(1-162-970-91)		
C151	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C259	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C152	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A			(1-162-970-91)		
				C260	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C153	CCH01-221JC	CERAMIC CAP 220PF CH J 50V A			(1-162-970-91)		
C161	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C261	CCH01-220JC	CERAMIC CAP 22PF CH J 50V A	
C162	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A					
C163	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C262	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C164	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-162-970-91)		
				C263	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C165	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-162-970-91)		
C166	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A		C264	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C167	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C265	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C168	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C266	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C169	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-162-970-91)		
				C267	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C170	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-162-970-91)		
C171	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C268	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A	
C172	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C269	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C173	CCH01-101JC	CERAMIC CAP 100PF CH J 50V A		C270	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-162-927-91)				(1-162-970-91)		
C174	CCH01-151JC	CERAMIC CAP 150PF CH J 50V A		C271	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
					(1-162-970-91)		
C175	FCT08-475MB	TANTALUM CAP 4.7MF 7V 20% A A		C272	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A	
	(1-135-181-XX)				(1-135-177-XX)		
C176	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A		C273	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A	
	(1-135-177-XX)				(1-135-177-XX)		
C177	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A A		C274	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-135-157-XX)				(1-162-970-91)		
C183	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C275	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C191	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-162-970-91)		
				C276	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C192	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-162-970-91)		
C193	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C277	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C194	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-162-970-91)		
C196	CSH01-751JC	CERAMIC CAP 750PF SL J 50V A		C278	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C201	CBH01-102KC	CERAMIC CAP 1000PF B K 50V A			(1-162-970-91)		
				C279	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
C202	CCH01-120JC	CERAMIC CAP 12PF CH J 50V A			(1-164-633-91)		
C203	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C280	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
C204	CCH01-471JC	CERAMIC CAP 470PF CH J 50V A			(1-164-633-91)		
C205	CCH01-9R0DC	CERAMIC CAP 9PF CH D 50V A		C281	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
C206	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A			(1-164-633-91)		
C207	CFF01-104ZC	TANTALUM CAP 1MF 7V 20% A A					
C208	FCT08-475MB	TANTALUM CAP 4.7MF 6.3V 20% A A					
C240	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A					
	(1-164-634-91)						

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF120SW PARTS LIST

FCA

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
C282	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C334	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A	
C283	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A		C335	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A	
C284	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A		C336	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A	
C285	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C337	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A	
C288	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C338	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C289	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C339	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A	
C290	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C340	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A	
C291	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C341	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A	
C294	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C342	CBH01-102KC (1-162-964-91)	CERAMIC CAP 1000PF B K 50V A	
C295	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C343	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A	
C296	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C344	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A	
C297	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C345	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A	
C298	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C347	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A	
C299	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C348	CCH01-150JC	CERAMIC CAP 15PF CH J 50V A	
C300	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A		C349	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C301	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C351	FCT08-475MB (1-135-181-XX)	TANTALUM CAP 4.7MF 7V 20% A A	
C302	CCH01-330JC (1-162-921-91)	CERAMIC CAP 33PF CH J 50V A		C371	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C304	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C372	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A	
C305	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C373	FCT08-475MB (1-135-181-XX)	TANTALUM CAP 4.7MF 7V 20% A A	
C306	FCT07-224MG (1-135-072-XX)	TANTALUM CAP 35V 0.22MF 20% A A		C374	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A	
C307	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		C379	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A	
C308	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A		C381	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A	
C309	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C384	FCT08-225MD (1-135-179-XX)	TANTALUM CAP 2.2MF 16V 20% A A	
C312	FCT08-335MC (1-135-180-XX)	TANTALUM CAP 3.3MF 10V 20% A A		----- CONNECTOR -----			
C313	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		CN52	FGA028-0031	CONNECTOR 3P 1.25MM STRAIGHT GRAY A	
C316	FCT08-335MC (1-135-180-XX)	TANTALUM CAP 3.3MF 10V 20% A A		CN53	FGA028-0081	CONNECTOR 8P 1.25MM STRAIGHT GRAY A	
C317	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		CN54	FGA028-0044	CONNECTOR 4P 1.25MM STRAIGHT RED A	
C318	FCT08-475MB (1-135-181-XX)	TANTALUM CAP 4.7MF 7V 20% A A		CN56	FGA028-0031	CONNECTOR 3P 1.25MM STRAIGHT GRAY A	
C319	FCT08-475MB (1-135-181-XX)	TANTALUM CAP 4.7MF 7V 20% A A		CN57	FGA028-0021	CONNECTOR 2P 1.25MM STRAIGHT GRAY A	
C320	FCT08-475MB (1-135-181-XX)	TANTALUM CAP 4.7MF 7V 20% A A		CN58	FGA028-0041	CONNECTOR 4P 1.25MM STRAIGHT GRAY A	
C322	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		CN221	FGC008-0102	CONNECTOR 10P 1.25MM B TO B B	
C324	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		CN222	FGC006-0182	CONNECTOR 18P 1.25MM B TO B B	
C325	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A		CN371	FGA028-0051	CONNECTOR 5P 1.25MM STRAIGHT GRAY A	
C326	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A		CN372	FGC008-0122	CONNECTOR 12P 1.25MM B TO B B	
C329	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		CN374	FGA028-0041	CONNECTOR 4P 1.25MM STRAIGHT GRAY A	
C330	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		----- TRIMMER -----			
C331	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A		CT50	FCY03-500PH	TRIMMER CAP 50PF 50V 1 B	
C332	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		----- DIODE -----			
C333	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V A		D51	FQDW0009-01	DIODE MA133-TX A	
				D52	FQDW0008-01 (8-719-421-72)	DIODE MA132WA-TX A	
				D53	FQDW0008-01 (8-719-421-72)	DIODE MA132WA-TX A	
				D54	FQDW0007-01 (8-719-421-68)	DIODE MA132WK-TX A	
				D56	FQDW0008-01 (8-719-421-72)	DIODE MA132WA-TX A	

When indicating parts by reference number, please include the board name.

FCA

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
D70	FQDZ0001-01	ZENER DIODE MA8082M-TX	A	L56	LA007-100KA COIL	10UH 10% Q20	A
D71	FQDZ0001-01	ZENER DIODE MA8082M-TX	A		(1-412-029-22)		
D72	FQDV0001-01	VARI CAP DIODE IT33C-T8-01	A	L57	LA007-100KA COIL	10UH 10% Q20	A
D103	FQDW0007-01	DIODE MA132WK-TX	A		(1-412-029-22)		
	(8-719-421-68)			L58	LA007-220KA COIL	22UH 10% Q20	A
	----- FILTER -----				(1-412-030-22)		
FL51	FLLF0017-00	LPF TH355LSK-5330-P1 Y.CCD 1/2,4FW	C	L59	LA007-220KA COIL	22UH 10% Q20	A
FL52	FLLF0018-00	LPF G354EAI-5331-P1 Y.CCD 2/2,4FUS	B		(1-412-030-22)		
FL221	FLLF0040-00	LPF TH486LSJ-0534-P1 Y.1HDL 1/2,4FJW	D	L60	LA007-100KA COIL	10UH 10% Q20	A
FL222	FLLF0041-00	LPF G486ENI-0535-P1 Y.1HDL 2/2,4FJW	D	L61	LA007-220KA COIL	22UH 10% Q20	A
FL223	FLLD0007-00	DELAY LINE TG355ENK-2203-P1 H.AP	C		(1-412-030-22)		
				L72	LA007-100KA COIL	1UH 20%	A
FL324	FLLD0008-00	DELAY LINE TG486ENK-0353-P1 V.AP	D	L224	LA007-100KA COIL	10UH 10% Q20	A
	----- IC -----				(1-412-029-22)		
IC51	FQHD0018-00	IC CXD1250N-T3 V DRIVER	G	L225	LA007-100KA COIL	10UH 10% Q20	A
	(8-752-327-49)				(1-412-029-22)		
IC52	FQHD0019-01	IC CXD1253AR-T5	J	L226	LA007-470KA COIL	47UH 10% Q20	A
IC53	FQHA0066-00	IC CXA1390AR-T3 CCD S/H&AGC	G		(1-412-031-22)		
	(8-752-055-80)			L227	LA007-470KA COIL	47UH 10% Q20	A
IC54	QID20-760VA	IC CXD1159Q-T3	F		(1-412-031-22)		
IC55	FQHA0095-00	IC TLC271CPS	C	L228	LA003-820JF COIL	82UH 5%	A
				L229	LA007-100KA COIL	10UH 10% Q20	A
IC58	FQHA0072-00	IC M62352GP-70EC D/A CONVERTER	F		(1-412-029-22)		
	(8-759-635-28)			L372	LA007-100KA COIL	10UH 10% Q20	A
IC59	QIA20-020EA	IC UPC393G2-T1	A		(1-412-029-22)		
IC60	FQHA0009-00	IC MM1036XFF-T1	C		----- IC PROTECTOR -----		
IC61	FQHY0017-00	IC LB1631M-TP-T1	D	PS70	△ FQY00008-02 IC PROTECTOR	0.6A TP:TE	A
IC62	FQHC0028-00	IC M37413M6H180FP KD-4 B/U/UJ AEF CPU	K	PS71	△ FQY00008-01 IC PROTECTOR	0.4A TP:TE	A
IC63	FQHD0021-00	IC FF2044A AEF GATE ARRAY	L		----- TRANSISTOR -----		
IC64	FQHD0020-00	IC UPD6951G-T1 A/D CONVERTER	G	Q51	FQTC0008-01 TRANSISTOR	2SC4617 TL	A
IC65	FQHA0076-00	IC FB9209-T3 AEF MASTER	J	Q52	FQTW0010-01 W. TRANSISTOR	XP6501-TX	A
IC67	FQHA0096-00	IC AN6545SP-(E1)	C	Q54	FQTW0013-01 W. TRANSISTOR	XP6401-TX	A
IC222	FQHA0069-00	IC CXL1508N-T3 NORM. BAND 1HCCD	G		(8-729-427-82)		
				Q56	FQTC0008-01 TRANSISTOR	2SC4617 TL	A
IC223	FQHA0070-00	IC CXL5504M-T3 Y 1HCCD	E	Q57	FQTC0008-01 TRANSISTOR	2SC4617 TL	A
	(8-752-334-45)						
IC224	FQHA0072-00	IC M62352GP-70EC D/A CONVERTER	F	Q58	FQTA0008-01 TRANSISTOR	2SA1774TL	A
	(8-759-635-28)			Q60	FQTA0008-01 TRANSISTOR	2SA1774TL	A
IC225	FQHA0072-00	IC M62352GP-70EC D/A CONVERTER	F	Q62	FQTC0008-01 TRANSISTOR	2SC4617 TL	A
	(8-759-635-28)			Q63	FQTW0010-01 W. TRANSISTOR	XP6501-TX	A
IC226	FQHA0072-00	IC M62352GP-70EC D/A CONVERTER	F	Q64	FQTP0003-01 D. TRANSISTOR	DTA144EE-TL	A
	(8-759-635-28)				(8-729-928-28)		
IC227	FQHA0067-00	IC CXA1391R-T5 PROCESS IC	H	Q65	FQTW0014-01 W. TRANSISTOR	XP4601-TX	A
					(8-729-427-76)		
IC228	FQSC0009-00	IC UPD4066BG-T1 ANALOG SW	A	Q67	FQTA0008-01 TRANSISTOR	2SA1774TL	A
	(8-759-151-09)			Q68	FQTC0008-01 TRANSISTOR	2SC4617TL	A
IC229	FQHA0073-00	IC LM324DB SSOP OP-AMP	B	Q70	FQTC0008-01 TRANSISTOR	2SC4617 TL	A
IC230	QID21-240RA	IC TC4S71F TE85R	A	Q225	FQTW0010-01 W. TRANSISTOR	XP6501-TX	A
IC231	QIA20-830EA	IC UPC842G2-E1	C				
IC232	QIA20-830EA	IC UPC842G2-E1	C	Q226	FQTC0008-01 TRANSISTOR	2SC4617 TL	A
				Q227	FQTA0008-01 TRANSISTOR	2SA1774TL	A
IC234	FQHA0068-00	IC CXA1392R-T3 ENCODER	G	Q228	FQTW0013-01 W. TRANSISTOR	XP6401-TX	A
IC235	FQHD0067-00	IC TC4S66F TE85R	A		(8-729-427-82)		
	(8-759-234-92)			Q230	FQTA0008-01 TRANSISTOR	2SA1774TL	A
IC236	FQHD0067-00	IC TC4S66F TE85R	A	Q236	FQTC0008-01 TRANSISTOR	2SC4617 TL	A
	(8-759-234-92)			Q237	FQTW0014-01 W. TRANSISTOR	XP4601-TX	A
IC371	FQHC0029-00	IC UPD78214GC-431-AB8 EVF CPU 64P TRAY	K		(8-729-427-76)		
IC372	FQHM0008-00	IC X24C01S-TE-1 1K BIT, EEPROM	D	Q240	FQTC0008-01 TRANSISTOR	2SC4617 TL	A
				Q241	FQTW0014-01 W. TRANSISTOR	XP4601-TX	A
	----- COIL -----				(8-729-427-76)		
L51	LA007-100KA COIL	10UH 10% Q20	A	Q360	FQTC0008-01 TRANSISTOR	2SC4617 TL	A
	(1-412-029-22)						
L52	LA007-100KA COIL	10UH 10% Q20	A	Q371	FQTP0003-01 D. TRANSISTOR	DTA144EE-TL	A
	(1-412-029-22)				(8-729-928-28)		
L53	LA007-100KA COIL	1UH 20%	A	Q372	FQTC0008-01 TRANSISTOR	2SC4617 TL	A
L54	LA007-100KA COIL	10UH 10% Q20	A	Q373	FQTW0010-01 W. TRANSISTOR	XP6501-TX	A
	(1-412-029-22)			Q375	FQTN0006-01 D. TRANSISTOR	DTC144EE-TL	A
L55	LA007-100KA COIL	10UH 10% Q20	A		(8-729-928-82)		
	(1-412-029-22)			Q376	FQTW0021-01 W. TRANSISTOR	XP6213-TX	A
					(8-729-428-46)		

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF120SW PARTS LIST

FCA

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
----- RESISTOR -----							
R51	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R156	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R52	REB03-105JC	RESISTOR 1M 1/16W 5%	A	R157	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R53	REB03-683JC	RESISTOR 68K 1/16W 5%	A	R158	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R54	REB03-153JC	RESISTOR 15K 1/16W 5%	A	R159	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R55	REB03-274JC	RESISTOR 270K 1/16W 5%	A	R160	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R56	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R161	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R57	REB03-823JC	RESISTOR 82K 1/16W 5%	A	R162	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R58	REB03-823JC	RESISTOR 82K 1/16W 5%	A	R163	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R59	REB03-183JC	RESISTOR 18K 1/16W 5%	A	R166	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R60	REB03-101JC	RESISTOR 100 1/16W 5%	A	R167	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R62	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R168	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R63	REB03-100JC	RESISTOR 10 1/16W 5%	A	R169	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R64	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R170	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R69	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R171	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R79	REB03-101JC	RESISTOR 100 1/16W 5%	A	R172	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R80	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R173	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R81	REB03-333JC	RESISTOR 33K 1/16W 5%	A	R174	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R82	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R175	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R83	REB03-333JC	RESISTOR 33K 1/16W 5%	A	R177	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R84	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R178	REB03-101JC	RESISTOR 100 1/16W 5%	A
R85	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R179	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R86	REB03-823JC	RESISTOR 82K 1/16W 5%	A	R180	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R87	REB03-153JC	RESISTOR 15K 1/16W 5%	A	R181	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R96	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A	R182	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R97	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R183	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A
R98	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R184	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R100	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R185	REB03-123JC	RESISTOR 12K 1/16W 5%	A
R101	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R186	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R102	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R187	REB03-682JC	RESISTOR 6.8K 1/16W 5%	A
R103	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R188	REB03-512JC	RESISTOR 5.1K 1/16W 5%	A
R104	REB03-0000C	RESISTOR 0 1/16W 5%	A	R189	REB03-822JC	RESISTOR 8.2K 1/16W 5%	A
R106	REB03-101JC	RESISTOR 100 1/16W 5%	A	R190	REB03-512JC	RESISTOR 5.1K 1/16W 5%	A
R107	REB03-221JC	RESISTOR 220 1/16W 5%	A	R191	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R108	REB03-101JC	RESISTOR 100 1/16W 5%	A	R192	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A
R110	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R193	REB03-0000C	RESISTOR 0 1/16W 5%	A
R113	REB03-105JC	RESISTOR 1M 1/16W 5%	A	R194	REB03-682JC	RESISTOR 6.8K 1/16W 5%	A
R114	REB03-105JC	RESISTOR 1M 1/16W 5%	A	R195	FRE012-203D	RESISTOR 20K 1/16W 0.50%	A
R115	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R196	REB03-153JC	RESISTOR 15K 1/16W 5%	A
R116	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R197	REB03-471JC	RESISTOR 470 1/16W 5%	A
R118	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R198	REB03-101JC	RESISTOR 100 1/16W 5%	A
R120	REB03-123JC	RESISTOR 12K 1/16W 5%	A	R199	FRO003-221J	N. RESISTOR 220 x4 5%	A
R122	REB03-683JC	RESISTOR 68K 1/16W 5%	A	R200	FRO003-222J	N. RESISTOR 2.2K x4 5%	A
R123	REB03-333JC	RESISTOR 33K 1/16W 5%	A	R201	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R124	REB03-333JC	RESISTOR 33K 1/16W 5%	A	R206	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R125	REB03-683JC	RESISTOR 68K 1/16W 5%	A	R207	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R126	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R208	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R127	REB03-163JC	RESISTOR 16K 1/16W 5%	A	R209	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R128	REB03-162JC	RESISTOR 1.6K 1/16W 5%	A	R210	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A
R129	REB03-393JC	RESISTOR 39K 1/16W 5%	A	R211	REB03-0000C	RESISTOR 0 1/16W 5%	A
R130	REB03-101JC	RESISTOR 100 1/16W 5%	A	R212	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A
R131	REB03-911JC	RESISTOR 910 1/16W 5%	A	R214	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R132	REB03-753JC	RESISTOR 75K 1/16W 5%	A	R215	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R133	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R216	REB03-333JC	RESISTOR 33K 1/16W 5%	A
R134	REB03-105JC	RESISTOR 1M 1/16W 5%	A	R217	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R135	REB03-333JC	RESISTOR 33K 1/16W 5%	A	R218	REB03-333JC	RESISTOR 33K 1/16W 5%	A
R136	REB03-333JC	RESISTOR 33K 1/16W 5%	A	R219	REB03-333JC	RESISTOR 33K 1/16W 5%	A
R137	REB03-562JC	RESISTOR 5.6K 1/16W 5%	A	R230	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R138	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R231	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R146	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R244	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R147	REB03-563JC	RESISTOR 56K 1/16W 5%	A	R245	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R148	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R246	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R152	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R247	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R155	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R248	REB03-473JC	RESISTOR 47K 1/16W 5%	A
				R249	REB03-473JC	RESISTOR 47K 1/16W 5%	A
				R250	REB03-473JC	RESISTOR 47K 1/16W 5%	A

When indicating parts by reference number, please include the board name.

FCA

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
R251	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R344	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R252	REB03-823JC	RESISTOR 82K 1/16W 5%	A	R347	REB03-153JC	RESISTOR 15K 1/16W 5%	A
R253	REB03-563JC	RESISTOR 56K 1/16W 5%	A	R348	REB03-123JC	RESISTOR 12K 1/16W 5%	A
R254	REB03-563JC	RESISTOR 56K 1/16W 5%	A	R350	REB03-0000C	RESISTOR 0 1/16W 5%	A
R255	REB03-823JC	RESISTOR 82K 1/16W 5%	A	R351	REB03-561JC	RESISTOR 560 1/16W 5%	A
R256	REB03-122JC	RESISTOR 1.2K 1/16W 5%	A	R352	REB03-561JC	RESISTOR 560 1/16W 5%	A
R257	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R354	REB03-0000C	RESISTOR 0 1/16W 5%	A
R258	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R355	REB03-0000C	RESISTOR 0 1/16W 5%	A
R259	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R356	REB03-0000C	RESISTOR 0 1/16W 5%	A
R260	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R360	REB03-0000C	RESISTOR 0 1/16W 5%	A
R261	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R361	REB03-152JC	RESISTOR 1.5K 1/16W 5%	A
R262	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R369	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R263	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R371	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R264	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A	R372	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R265	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R373	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R266	REB03-273JC	RESISTOR 27K 1/16W 5%	A	R374	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R267	REB03-273JC	RESISTOR 27K 1/16W 5%	A	R375	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R268	REB03-183JC	RESISTOR 18K 1/16W 5%	A	R376	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R269	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R377	FR0003-102J	N.RESISTOR 1K x4 5%	A
R270	REB03-273JC	RESISTOR 27K 1/16W 5%	A	R381	FR0003-102J	N.RESISTOR 1K x4 5%	A
R271	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R385	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R272	REB03-273JC	RESISTOR 27K 1/16W 5%	A	R386	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R273	REB03-562JC	RESISTOR 5.6K 1/16W 5%	A	R387	FR0003-104J	N.RESISTOR 100K x4 5%	A
R274	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R391	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R275	REB03-153JC	RESISTOR 15K 1/16W 5%	A	R392	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R276	REB03-153JC	RESISTOR 15K 1/16W 5%	A	R393	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R279	REB03-0000C	RESISTOR 0 1/16W 5%	A	R394	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R280	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R395	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R281	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R396	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R282	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R397	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R283	REB03-0000C	RESISTOR 0 1/16W 5%	A	R398	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R284	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R399	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R285	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R400	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A
R286	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R401	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R287	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R402	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R296	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R406	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R297	REB03-393JC	RESISTOR 39K 1/16W 5%	A	R407	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R298	REB03-183JC	RESISTOR 18K 1/16W 5%	A	R408	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R299	REB03-223JC	RESISTOR 22K 1/16W 5%	A	R409	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R300	REB03-223JC	RESISTOR 22K 1/16W 5%	A	R410	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R301	REB03-393JC	RESISTOR 39K 1/16W 5%	A	R411	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R302	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R412	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R303	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R413	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R304	REB03-393JC	RESISTOR 39K 1/16W 5%	A	R414	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R305	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R415	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R306	REB03-682JC	RESISTOR 6.8K 1/16W 5%	A	R416	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R307	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R417	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R308	REB03-223JC	RESISTOR 22K 1/16W 5%	A	R418	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R310	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R419	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R311	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R420	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R312	REB03-682JC	RESISTOR 6.8K 1/16W 5%	A	R421	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R313	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R422	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R314	REB03-223JC	RESISTOR 22K 1/16W 5%	A	R423	REB03-153JC	RESISTOR 15K 1/16W 5%	A
R316	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R424	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R323	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A	R425	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R324	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R427	REB03-0000C	RESISTOR 0 1/16W 5%	A
R325	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R430	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R326	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R434	REB03-0000C	RESISTOR 0 1/16W 5%	A
R327	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A	R435	REB03-101JC	RESISTOR 100 1/16W 5%	A
R328	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R436	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R339	REB03-221JC	RESISTOR 220 1/16W 5%	A	R437	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R340	REB03-474JC	RESISTOR 470K 1/16W 5%	A	R440	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R341	REB03-273JC	RESISTOR 27K 1/16W 5%	A	R441	REB03-0000C	RESISTOR 0 1/16W 5%	A
R342	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R442	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R343	REB03-123JC	RESISTOR 12K 1/16W 5%	A	R445	REB03-0000C	RESISTOR 0 1/16W 5%	A

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF120SW PARTS LIST

FCA FCC FEJ FEL FJA

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
R446	REB03-0000C	RESISTOR 0 1/16W 5%	A			----- COIL -----	
R448	REB03-102JC	RESISTOR 1K 1/16W 5%	A	L1951	FLA021-1R0K	COIL 1UH 10%	A
R449	REB03-104JC	RESISTOR 100K 1/16W 5%	A	L1952	FLA021-1R0K	COIL 1UH 10%	A
		----- FLEXIBLE BOARD -----		L1953	FLA021-1R0K	COIL 1UH 10%	A
W51	FZ00410-100	FPC, FP-23BU W/6P CONNECTOR (AMP)	D	L1954	FLA021-1R0K	COIL 1UH 10%	A
W52	FZ00191-100	FPC ASSY, FP-10	E			----- SWITCH -----	
		----- CRYSTAL VIBRATOR -----		SW1951	FZ00403-100	SLIDE SWITCH 1C 2P SIDE	A
X51	FZ00434-200	X' TAL JXO-3F-TP-28.37500M	F	SW1952	FZ00407-100	SLIDE SWITCH 1C 3P SIDE	B
X52	FZ00173-100	FAR 8MHZ	B			----- FLEXIBLE BOARD -----	
X53	FZ00432-200	X' TAL CX-49F-TP-17.734475M		W1951	FZ00423-100	FPC, FP-31U W/4P CONNECTOR (JAE)	F
X371	FZ00174-100	FAR 12MHZ	B				
*****				*****			
	CB0054-B202	FCC PWB ASSY	M		CB0054-C303	FEL PWB ASSY	M
		*****				*****	
		----- CAPACITOR -----			BB00229-100	TERMINAL, LITHIUM A	A
C1	CCH01-471JC	CERAMIC CAP 470PF CH J 50V	A		BB00230-100	TERMINAL, LITHIUM B	A
C2	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V	A			----- CAPACITOR -----	
	(1-164-634-91)			C1551	CBH01-102KC	CERAMIC CAP 1000PF B K 50V	A
C3	CTE10-106MA	TANTALUM CAP 10MF 20V 20% C	A		(1-162-964-91)		
C4	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A	C1552	CBH01-102KC	CERAMIC CAP 1000PF B K 50V	A
	(1-162-970-91)				(1-162-964-91)		
C6	CTB10-336MA	TANTALUM CAP 33MF 6.3V 20% C	A	C1553	CBH01-102KC	CERAMIC CAP 1000PF B K 50V	A
	(1-135-162-91)				(1-162-964-91)		
C7	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A	A	C1555	CBH01-102KC	CERAMIC CAP 1000PF B K 50V	A
	(1-135-177-XX)				(1-162-964-91)		
		----- CONNECTOR -----				----- CONNECTOR -----	
CN1	FGC006-0142	CONNECTOR 14P 1.25MM B TO B	B	CN1551	FGA028-0041	CONNECTOR 4P 1.25MM STRAIGHT GRAY	A
		----- COIL -----				----- DIODE -----	
L1	LA007-101KA	COIL 100UH 10% Q20	A	D1551	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
	(1-412-032-22)			D1552	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
		----- TRANSISTOR -----		D1553	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
Q1	FQTK0009-01	TRANSISTOR 2SK300-*T7	B	D1554	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
		----- RESISTOR -----				----- JACK -----	
R1	REB03-681JC	RESISTOR 680 1/16W 5%	A	J1551	FZ00017-100	JACK, MINI TYPE, 1P	A
R2	REB03-273JC	RESISTOR 27K 1/16W 5%	A		(1-568-027-11)		
R3	REB03-184JC	RESISTOR 180K 1/16W 5%	A			----- COIL -----	
R4	REB03-101JC	RESISTOR 100 1/16W 5%	A	L1551	FLA021-1R0K	COIL 1UH 10%	A
R5	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A	L1552	FLA021-1R0K	COIL 1UH 10%	A
		*****		L1553	FLA021-1R0K	COIL 1UH 10%	A
		*****		L1554	FLA021-1R0K	COIL 1UH 10%	A
		*****				----- CAPACITOR -----	
	CB0055-D401	FEJ PWB ASSY	J				
		*****			CB0055-E502	FJA PWB ASSY	J
		*****				*****	
		----- DIODE -----				----- CAPACITOR -----	
D1951	FQDZ0001-01	ZENER DIODE MA8082M-TX	A	C1901	CBH01-102KC	CERAMIC CAP 1000PF B K 50V	A
D1952	FQDZ0001-01	ZENER DIODE MA8082M-TX	A		(1-162-964-91)		
D1953	FQDZ0001-01	ZENER DIODE MA8082M-TX	A				
D1954	FQDZ0001-01	ZENER DIODE MA8082M-TX	A				

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FJA	FMC	FRC
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Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
----- CONNECTOR -----				----- COIL -----			
CN1901	FGB002-0101	CONNECTOR 10P FPC 1.0MM	A	L1401	LA007-101KA	COIL 100UH 10% Q20 (1-412-032-22)	A
----- DIODE -----				----- TRANSISTOR -----			
D1901	FQDZ0001-01	ZENER DIODE MA8082M-TX	A	Q1401	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
D1902	FQDZ0001-01	ZENER DIODE MA8082M-TX	A	Q1402	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
D1903	FQDZ0001-01	ZENER DIODE MA8082M-TX	A	Q1403	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
----- JACK -----				Q1404	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
J1901	FZ00444-100	JACK AUDIO I/O PIN	C	Q1405	FQTA0008-01	TRANSISTOR 2SA1774TL	A
----- COIL -----				----- RESISTOR -----			
L1901	FLA021-1R0K	COIL 1UH 10%	A	R1401	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
----- SWITCH -----				R1402	REB03-123JC	RESISTOR 12K 1/16W 5%	A
SW1901	FZ00439-100	SLIDE SWITCH 2C 2P VERT.	A	R1403	REB03-823JC	RESISTOR 82K 1/16W 5%	A
*****				R1404	REB03-104JC	RESISTOR 100K 1/16W 5%	A
CB0052-B202	FMC PWB ASSY		L	R1405	REB03-183JC	RESISTOR 18K 1/16W 5%	A
*****				R1406	REB03-241JC	RESISTOR 240 1/16W 5%	A
FZ00302-100	SPACER, LED		B	R1407	REB03-183JC	RESISTOR 18K 1/16W 5%	A
----- CAPACITOR -----				R1408	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
C1401	CBH01-102KC	CERAMIC CAP 1000PF B K 50V (1-162-964-91)	A	R1409	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A
C1403	CBH01-102KC	CERAMIC CAP 1000PF B K 50V (1-162-964-91)	A	R1410	REB03-822JC	RESISTOR 8.2K 1/16W 5%	A
C1404	CFH01-473ZC	CERAMIC CAP 0.047MF F Z 50V	A	R1411	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A
C1405	CTE10-106MA	TANTALUM CAP 10MF 20V 20% C	A	R1412	REB03-102JC	RESISTOR 1K 1/16W 5%	A
C1406	CFH01-333ZC	CERAMIC CAP 0.033PF F Z 50V	A	R1413	REB03-822JC	RESISTOR 8.2K 1/16W 5%	A
C1407	CCH01-101JC	CERAMIC CAP 100PF CH J 50V (1-162-927-91)	A	R1414	REB03-103JC	RESISTOR 10K 1/16W 5%	A
C1408	CCH01-101JC	CERAMIC CAP 100PF CH J 50V (1-162-927-91)	A	R1415	REB03-822JC	RESISTOR 8.2K 1/16W 5%	A
C1409	CCH01-100DC	CERAMIC CAP 10PF CH D 50V (1-162-915-91)	A	R1416	REB03-822JC	RESISTOR 8.2K 1/16W 5%	A
C1410	FCA01-475MG	E.CAP 4.7MF 35V 20%	A	R1417	REB03-681JC	RESISTOR 680 1/16W 5%	A
C1411	CRD01-123KC	CERAMIC CAP 0.012MF R K 16V	A	R1418	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
C1412	FCA01-475MG	E.CAP 4.7MF 35V 20%	A	R1419	REB03-151JC	RESISTOR 150 1/16W 5%	A
C1413	CRD01-123KC	CERAMIC CAP 0.012MF R K 16V	A	R1420	REB03-562JC	RESISTOR 5.6K 1/16W 5%	A
C1414	CRD01-123KC	CERAMIC CAP 0.012MF R K 16V	A	R1421	REB03-331JC	RESISTOR 330 1/16W 5%	A
C1415	CTC09-106MA	TANTALUM CAP 10MF 10V 20% B2	A	*****			
C1416	FCA01-476MB	E.CAP 47MF 6.3V 20% (1-126-205-21)	A	CB0055-B201	FRC PWB ASSY		J
C1417	CRD01-123KC	CERAMIC CAP 0.012MF R K 16V	A	*****			
C1418	CBH01-102KC	CERAMIC CAP 1000PF B K 50V (1-162-964-91)	A	----- CONNECTOR -----			
C1419	CCH01-221JC	CERAMIC CAP 220PF CH J 50V	A	CN1601	FGA028-0042	CONNECTOR 4P 1.25MM ANGLE GRAY	A
C1420	CFH01-473ZC	CERAMIC CAP 0.047MF F Z 50V	A	----- SWITCH -----			
----- CONNECTOR -----				SW1601	FZ00231-200	TACT SWITCH	A
CN1401	FCA04-04101	CONNECTOR 1.5MM ANGLE 4P	A	SW1602	FZ00438-100	SLIDE SWITCH 1C 2P VERT.	A
CN1402	FGA028-0041	CONNECTOR 4P 1.25MM STRAIGHT GRAY	A				
----- DIODE -----							
D1401	FQDZ0001-01	ZENER DIODE MA8082M-TX	A				
D1402	FQDL0016-01	LED PR2434D, RED, HIGH-ILL. TYPE, LEAD	A				

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF120SW PARTS LIST

FSS

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price

	CB0052-C103	FSS PWB ASSY	VD	C898	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	

	BB01109-100	CASE A, SHIELD, R/P	N.S.	C899	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
	BB01110-100	CASE B, SHIELD, R/P	N.S.		(1-164-633-91)		
	----- CAPACITOR -----						
C853	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C900	FCT08-226MC	TANTALUM CAP 22MF 10V 20% B A	
	(1-162-970-91)				(1-135-161-XX)		
C858	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C901	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
	(1-162-970-91)			C902	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
C866	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-164-633-91)		
	(1-162-970-91)			C909	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C867	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-970-91)		
	(1-162-970-91)			C912	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C868	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-970-91)		
	(1-162-970-91)			C918	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
					(1-162-970-91)		
C869	CCH01-7R0DC	CERAMIC CAP 7PF CH D 50V A		C919	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C870	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-970-91)		
	(1-162-970-91)			C920	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C871	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-970-91)		
	(1-162-970-91)			C921	CCH01-7R0DC	CERAMIC CAP 7PF CH D 50V A	
C872	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-135-177-XX)		
	(1-162-970-91)			C922	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C873	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-970-91)		
	(1-162-970-91)			C923	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
					(1-162-970-91)		
C874	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C924	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-162-970-91)				(1-162-970-91)		
C875	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C925	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-162-970-91)				(1-162-970-91)		
C876	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A					
	(1-135-177-XX)			C926	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A	
C877	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A			(1-135-177-XX)		
	(1-135-177-XX)			C927	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C878	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A			(1-162-970-91)		
	(1-164-633-91)			C928	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
					(1-162-970-91)		
C879	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A		C929	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-164-633-91)				(1-162-970-91)		
C880	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C930	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A	
	(1-162-970-91)				(1-135-177-XX)		
C881	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C931	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C882	FCT08-226MC	TANTALUM CAP 22MF 10V 20% B A			(1-162-970-91)		
	(1-135-161-XX)			C932	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
C883	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-164-633-91)		
	(1-162-970-91)			C933	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
					(1-164-633-91)		
C884	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A		C934	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-164-633-91)				(1-162-970-91)		
C885	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C935	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C886	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A					
	(1-164-633-91)			C936	FCT08-226MC	TANTALUM CAP 22MF 10V 20% B A	
C887	FCT08-226MC	TANTALUM CAP 22MF 10V 20% B A			(1-135-161-XX)		
	(1-135-161-XX)			C937	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C888	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-970-91)		
	(1-162-970-91)			C938	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
					(1-164-633-91)		
C889	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C939	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
	(1-162-970-91)				(1-135-157-XX)		
C891	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A		C940	FCT08-226MC	TANTALUM CAP 22MF 10V 20% B A	
	(1-135-177-XX)				(1-135-161-XX)		
C892	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A					
	(1-162-970-91)			C941	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
C893	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A A			(1-164-633-91)		
	(1-135-157-XX)			C942	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C894	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-970-91)		
	(1-162-970-91)			C943	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
					(1-162-970-91)		
C895	CCH01-7R0DC	CERAMIC CAP 7PF CH D 50V A		C945	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A	
C896	CFH01-473ZC	CERAMIC CAP 0.047MF F Z 50V A			(1-135-177-XX)		
C897	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C946	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-162-970-91)				(1-162-970-91)		
				C947	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A A	
					(1-135-157-XX)		
				C948	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
					(1-162-970-91)		

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Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
C949	CFH01-473ZC	CERAMIC CAP 0.047MF F Z 50V A		C1123	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A	
C950	CCH01-7RODC	CERAMIC CAP 7PF CH D 50V A		C1124	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C951	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-970-91)		
C952	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A		C1125	FCT08-335MC	TANTALUM CAP 3.3MF 10V 20% A A	
	(1-164-633-91)				(1-135-180-XX)		
C956	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C1126	FCT08-335MC	TANTALUM CAP 3.3MF 10V 20% A A	
	(1-135-180-XX)				(1-135-180-XX)		
C957	CCH01-101JC	CERAMIC CAP 100PF CH J 50V A		C1127	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
	(1-162-927-91)				(1-164-633-91)		
C958	CCH01-151JC	CERAMIC CAP 150PF CH J 50V A		C1128	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A	
C959	CCH01-101JC	CERAMIC CAP 100PF CH J 50V A			(1-164-634-91)		
C960	CCH01-101JC	CERAMIC CAP 100PF CH J 50V A		C1129	CBH01-472KC	CERAMIC CAP 4700PF B K 50V A	
	(1-162-927-91)				(1-162-968-91)		
C962	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C1130	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A	
	(1-162-970-91)				(1-164-634-91)		
C963	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C1131	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A	
	(1-162-970-91)				(1-164-634-91)		
C964	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C1201	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
	(1-162-970-91)				(1-164-633-91)		
C967	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C1202	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-162-970-91)				(1-162-970-91)		
C968	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C1203	CBH01-473KD	CERAMIC CAP 0.047MF B K 50V A	
	(1-162-970-91)			C1204	FCH07-104JD	EP CAP 0.1MF 16V 5% A	
C969	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A A		C1205	FCT08-335MC	TANTALUM CAP 3.3MF 10V 20% A A	
	(1-135-157-XX)				(1-135-180-XX)		
C970	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A A		C1206	CBH01-473KD	CERAMIC CAP 0.047MF B K 50V A	
	(1-135-157-XX)				(1-162-970-91)		
C971	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C1207	CBH01-473KD	CERAMIC CAP 0.047MF B K 50V A	
	(1-162-970-91)			C1208	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C977	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-970-91)		
	(1-162-970-91)			C1209	CRD01-154KD	CERAMIC CAP 0.15MF R K 16V A	
C978	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C1210	CRD01-154KD	CERAMIC CAP 0.15MF R K 16V A	
	(1-162-970-91)			C1211	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
C979	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-164-633-91)		
	(1-162-970-91)			C1212	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-162-970-91)				(1-162-970-91)		
C980	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C1213	CFF01-224ZD	CERAMIC CAP 0.22MF F Z 25V A	
	(1-162-970-91)			C1214	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A A	
C985	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-135-157-XX)		
	(1-162-970-91)			C1215	CBH01-473KD	CERAMIC CAP 0.047MF B K 50V A	
C987	CBH01-102KC	CERAMIC CAP 1000PF B K 50V A		C1216	CBH01-332KC	CERAMIC CAP 3300PF B K 50V A	
	(1-162-964-91)				(1-162-967-91)		
C1101	FCA14-475MC	LEAD E. CAP 4.7MF 10V 20% A		C1217	CBH01-102KC	CERAMIC CAP 1000PF B K 50V A	
	(1-127-551-91)				(1-162-964-91)		
C1102	FCA14-475MC	LEAD E. CAP 4.7MF 10V 20% A		C1218	CBH01-102KC	CERAMIC CAP 1000PF B K 50V A	
	(1-127-551-91)				(1-162-964-91)		
C1103	FCA14-475MC	LEAD E. CAP 4.7MF 10V 20% A		C1219	CBH01-102KC	CERAMIC CAP 1000PF B K 50V A	
	(1-127-551-91)				(1-162-964-91)		
C1104	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C1223	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A A	
C1105	FCA14-475MC	LEAD E. CAP 4.7MF 10V 20% A			(1-135-157-XX)		
	(1-127-551-91)			C1224	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C1106	FCA14-475MC	LEAD E. CAP 4.7MF 10V 20% A			(1-162-970-91)		
	(1-127-551-91)			C1225	CBH01-473KD	CERAMIC CAP 0.047MF B K 50V A	
C1107	CBH01-473KD	CERAMIC CAP 0.047MF B K 50V A		C1226	CBH01-472KC	CERAMIC CAP 4700PF B K 50V A	
	(1-162-967-91)				(1-162-968-91)		
C1111	CCH01-180JC	CERAMIC CAP 18PF CH J 50V A		C1227	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A	
C1112	CCH01-330JC	CERAMIC CAP 33PF CH J 50V A			(1-164-633-91)		
	(1-162-921-91)			C1228	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
C1113	CCH01-330JC	CERAMIC CAP 33PF CH J 50V A			(1-162-970-91)		
	(1-162-921-91)			C1229	FCT08-225MD	TANTALUM CAP 2.2MF 16V 20% A A	
C1114	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-135-179-XX)		
C1115	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C1230	FCT14-106MB	TANTALUM CAP 6.3V 10MF 20% X A	
	(1-162-967-91)			C1231	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A	
C1117	CBH01-332KC	CERAMIC CAP 3300PF B K 50V A			(1-164-634-91)		
	(1-162-967-91)			C1232	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A	
C1118	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A			(1-164-634-91)		
C1119	CTE10-106MA	TANTALUM CAP 10MF 20V 20% C A		C1233	CTE10-106MA	TANTALUM CAP 10MF 20V 20% C A	
C1121	CBF01-104KD	CERAMIC CAP 0.1MF B K 25V A		C1234	CCH01-120JC	CERAMIC CAP 12PF CH J 50V A	
	(1-164-633-91)				(1-162-916-91)		
C1122	FCT08-335MC	TANTALUM CAP 3.3MF 10V 20% A A					
	(1-135-180-XX)						

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3 Electrical Parts

FF120SW PARTS LIST

FSS

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
C1235	CCH01-120JC (1-162-916-91)	CERAMIC CAP 12PF CH J 50V	A	C1278	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A	
C1236	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V	A	C1279	CCH01-220JC	CERAMIC CAP 22PF CH J 50V	A
C1237	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V	A	C1280	CBH01-473KD	CERAMIC CAP 0.047MF B K 50V	A
C1238	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V	A	C1281	CFD01-105ZD (1-164-634-91)	CERAMIC CAP 1MF F Z 16V	A
C1239	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V	A	C1350	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A	
C1240	CCH01-471JC	CERAMIC CAP 470PF CH J 50V	A	C1351	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A	
C1241	CBH01-102KC (1-162-964-91)	CERAMIC CAP 1000PF B K 50V	A	C1352	CFH01-473ZC	CERAMIC CAP 0.047MF F Z 50V	A
C1242	CFD01-105ZD (1-164-634-91)	CERAMIC CAP 1MF F Z 16V	A	C1354	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V	A
C1243	CTE10-106MA	TANTALUM CAP 10MF 20V 20% C A		----- CONNECTOR -----			
C1244	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V	A	CN851	FGB002-0151 (1-566-531-21)	CONNECTOR 15P FPC 1.0MM	B
C1245	CBH01-682KC	CERAMIC CAP 6800PF B K 50V	A	CN853	FGC030-0121	CONNECTOR 12P B TO B SOCKET 1MM	A
C1246	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		CN1100	FGC008-0142	CONNECTOR 14P 1.25MM B TO B	B
C1247	CBH01-102KC (1-162-964-91)	CERAMIC CAP 1000PF B K 50V	A	CN1102	FGB001-0141 (1-566-546-41)	CONNECTOR 14P	B
C1248	CBH01-102KC (1-162-964-91)	CERAMIC CAP 1000PF B K 50V	A	CN1103	FGB001-0091 (1-566-541-41)	CONNECTOR 9P	A
C1249	CFD01-105ZD (1-164-634-91)	CERAMIC CAP 1MF F Z 16V	A	CN1104	FGB001-0061 (1-566-538-41)	CONNECTOR 6P	A
C1250	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A		CN1105	FCA04-02101	CONNECTOR 1.5MM ANGLE 2P	A
C1251	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V	A	CN1106	FGC009-0042	CONNECTOR 4P 1.25MM B TO B	B
C1252	CBF01-223KC	CERAMIC CAP 0.022MF B K 25V	A	CN1107	FGA028-0072	CONNECTOR 7P 1.25MM ANGLE GRAY	A
C1253	CBF01-223KC	CERAMIC CAP 0.022MF B K 25V	A	----- TRIMMER -----			
C1254	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A		CV1101	FCY03-500PH	TRIMMER CAP 50PF 50V 1	B
C1255	CBH01-472KC (1-162-968-91)	CERAMIC CAP 4700PF B K 50V	A	----- DIODE -----			
C1256	CBH01-473KD	CERAMIC CAP 0.047MF B K 50V	A	D851	FQDW0001-01 (8-719-404-47)	DIODE MA110-TX	A
C1257	CCH01-330JC (1-162-921-91)	CERAMIC CAP 33PF CH J 50V	A	D852	FQDW0001-01 (8-719-404-47)	DIODE MA110-TX	A
C1258	CCH01-330JC (1-162-921-91)	CERAMIC CAP 33PF CH J 50V	A	D853	FQDW0001-01 (8-719-404-47)	DIODE MA110-TX	A
C1259	CBH01-102KC (1-162-964-91)	CERAMIC CAP 1000PF B K 50V	A	D854	FQDW0001-01 (8-719-404-47)	DIODE MA110-TX	A
C1260	CBH01-472KC	CERAMIC CAP 4700PF B K 50V	A	D1101	FQDY0009-01 (8-719-421-28)	SHOTKEY DIODE MA728-TX	A
C1261	CBF01-104KD (1-164-633-91)	CERAMIC CAP 0.1MF B K 25V	A	D1102	FQDY0009-01 (8-719-421-28)	SHOTKEY DIODE MA728-TX	A
C1262	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		D1104	FQDY0009-01 (8-719-421-28)	SHOTKEY DIODE MA728-TX	A
C1263	CFD01-105ZD (1-164-634-91)	CERAMIC CAP 1MF F Z 16V	A	D1202	FQDW0007-01 (8-719-421-68)	DIODE MA132WK-TX	A
C1264	CFD01-105ZD (1-164-634-91)	CERAMIC CAP 1MF F Z 16V	A	----- IC -----			
C1265	CFD01-105ZD (1-164-634-91)	CERAMIC CAP 1MF F Z 16V	A	IC851	FQHA0169-00	IC CXA1234AR-T3 REC1PB AMP	G
C1266	CBH01-222KC (1-162-966-91)	CERAMIC CAP 2200PF B K 50V	A	IC852	FQHA0169-00	IC CXA1234AR-T3 REC1PB AMP	G
C1267	CBH01-473KD	CERAMIC CAP 0.047MF B K 50V	A	IC1102	FQHY0027-00	IC IC-PST7040MT TP:REV.DIR.SYS.RESET	B
C1268	CBH01-473KD	CERAMIC CAP 0.047MF B K 50V	A	IC1103	FQHM0008-00	IC X24C01S-TE-1 1K BIT, EEPROM	D
C1269	CBH01-153KC	CERAMIC CAP 0.015MF B K 50V	A	IC1104	FQHY0027-00	IC IC-PST7040MT TP:REV.DIR.SYS.RESET	B
C1270	CCH01-471JC	CERAMIC CAP 470PF CH J 50V	A	IC1105	FQHA0094-00	IC MM1060GMR	B
C1271	CBH01-102KC (1-162-964-91)	CERAMIC CAP 1000PF B K 50V	A	IC1106	FQHC0037-00	IC UPD75512GF-164-3B9 MODE CONT.4BIT 16K	J
C1272	CFH01-224ZE	CERAMIC CAP 0.22MF F Z 50V	A	IC1201	FQHA0126-00 (8-759-506-96)	IC CXA8006M-Q-E1 DRUM MOTOR DRIVE AMP	H
C1273	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V	A	IC1202	FQHA0123-00 (8-759-038-73)	IC MPC1710BMR LD MOTOR DRIVER	D
C1274	CCH01-470JC (1-162-923-91)	CERAMIC CAP 47PF CH J 50V	A	IC1203	FQHA0062-00	IC CXA1512M-T3 FG/PG AMP	E
C1275	CCH01-471JC	CERAMIC CAP 470PF CH J 50V	A	IC1204	FQHA0061-00 (8-752-038-72)	IC CXA1127AM-T1	F
C1276	CBH01-103KC (1-162-970-91)	CERAMIC CAP 0.01MF 50V B K A		IC1205	QIA20-300EA (8-759-103-94)	IC UPC324G2-T1	A
C1277	CSH01-152JD (1-163-145-91)	CERAMIC CAP 1500PF SL J 50V	A	IC1206	FQHC0035-01	IC CXP80116-734Q	L
				IC1207	FQHA0014-00 (8-752-035-48)	IC CXA1204Q	C
				IC1208	QIA20-020EA	IC UPC393G2-T1	A

When indicating parts by reference number, please include the board name.

FSS

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
----- COIL -----							
L851	LA007-221KA	COIL 220UH 10% Q20	A	Q867	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A
L852	LA007-220KA	COIL 22UH 10% Q20	A	Q868	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A
L853	LA007-101KA	COIL 100UH 10% Q20	A	Q869	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A
L854	FLA020-330J	COIL 33UH 5% 0.125A	A	Q871	FQTA0002-05	TRANSISTOR 2SA812-T1B M7	A
L855	FLA020-330J	COIL 33UH 5% 0.125A	A	Q872	FQTA0004-03	TRANSISTOR 2SA1611-T1-M6 (8-729-117-22)	A
L858	LA007-100KA	COIL 10UH 10% Q20	A	Q873	FQTA0004-03	TRANSISTOR 2SA1611-T1-M6 (8-729-117-22)	A
L859	LA007-100KA	COIL 10UH 10% Q20	A	Q877	FQTP0003-01	D. TRANSISTOR DTA144EE-TL (8-729-928-28)	A
L862	LA007-221KA	COIL 220UH 10% Q20	A	Q878	FQTC0009-01	TRANSISTOR 2SC4099 T106	A
L863	LA007-220KA	COIL 22UH 10% Q20	A	Q879	FQTC0009-01	TRANSISTOR 2SC4099 T106	A
L864	LA007-101KA	COIL 100UH 10% Q20	A	Q1101	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A
L865	FLA020-330J	COIL 33UH 5% 0.125A	A	Q1102	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A
L866	FLA020-330J	COIL 33UH 5% 0.125A	A	Q1103	FQTC0012-01	TRANSISTOR 2SC4177-T1	A
L868	LA007-221KA	COIL 220UH 10% Q20	A	Q1104	FQTC0012-01	TRANSISTOR 2SC4177-T1	A
L869	FLA020-100J	COIL 10UH 5% 0.155A	A	Q1105	FQTW0013-01	W. TRANSISTOR XP6401-TX (8-729-427-82)	A
L870	LA007-101KA	COIL 100UH 10% Q20	A	Q1106	FQTC0012-01	TRANSISTOR 2SC4177-T1	A
L1101	LA007-101KA	COIL 100UH 10% Q20	A	Q1107	FQTA0004-08	TRANSISTOR 2SA1611-T1-M4M5M6M7	A
L1102	LA007-100KA	COIL 10UH 10% Q20	A	Q1108	QTK02-094RA	TRANSISTOR 2SK209 (BL)	A
L1201	LA007-470KA	COIL 47UH 10% Q20	A	Q1109	FQTC0012-01	TRANSISTOR 2SC4177-T1	A
L1202	LA007-470KA	COIL 47UH 10% Q20	A	Q1110	FQTC0012-01	TRANSISTOR 2SC4177-T1	A
L1203	LA007-101KA	COIL 100UH 10% Q20	A	Q1111	FQTC0012-01	TRANSISTOR 2SC4177-T1	A
L1204	LA004-331JC	COIL 330UH 5%	A	Q1112	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A
L1205	LA007-101KA	COIL 100UH 10% Q20	A	Q1113	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A
L1350	LA007-100KA	COIL 10UH 10% Q20	A	Q1114	FQTP0003-01	D. TRANSISTOR DTA144EE-TL (8-729-928-28)	A
----- IC PROTECTOR -----				Q1115	FQTP0003-01	D. TRANSISTOR DTA144EE-TL (8-729-928-28)	A
PS1101	△ FQY00008-03	IC PROTECTOR 0.8A TP:TE	A	Q1201	FQTW0010-01	W. TRANSISTOR XP6501-TX	A
PS1102	△ FQY00008-02	IC PROTECTOR 0.6A TP:TE	A	Q1202	FQTW0010-01	W. TRANSISTOR XP6501-TX	A
PS1103	△ FQY00008-02	IC PROTECTOR 0.6A TP:TE	A	Q1203	FQTW0013-01	W. TRANSISTOR XP6401-TX (8-729-427-82)	A
PS1104	△ FQY00008-02	IC PROTECTOR 0.6A TP:TE	A	Q1204	QTY20-300RA	W. TRANSISTOR IMH8 (TP)	A
----- TRANSISTOR -----				Q1205	QTY20-300RA	W. TRANSISTOR IMH8 (TP)	A
Q851	FQTA0015-01	TRANSISTOR 2SA1838-TL	A	Q1206	FQTN0008-01	D. TRANSISTOR DTC114EE TL (8-729-928-91)	A
Q852	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A	Q1207	QTY20-300RA	W. TRANSISTOR IMH8 (TP)	A
Q854	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A	Q1208	FQTN0001-01	D. TRANSISTOR DTC144TU-T106 (8-729-921-10)	A
Q855	FQTA0015-01	TRANSISTOR 2SA1838-TL	A	Q1209	FQTW0010-01	W. TRANSISTOR XP6501-TX	A
Q857	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A	Q1210	FQTA0008-01	TRANSISTOR 2SA1774TL	A
Q858	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A	Q1211	FQTW0013-01	W. TRANSISTOR XP6401-TX (8-729-427-82)	A
Q859	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A	Q1212	FQTA0008-01	TRANSISTOR 2SA1774TL	A
Q861	FQTA0015-01	TRANSISTOR 2SA1838-TL	A	Q1213	FQTB0002-05	TRANSISTOR 2SB1132-T101-QR (8-729-920-81)	A
Q862	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A	Q1214	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
Q863	FQTA0015-01	TRANSISTOR 2SA1838-TL	A	Q1215	FQTW0013-01	W. TRANSISTOR XP6401-TX (8-729-427-82)	A
Q864	FQTN0006-01	D. TRANSISTOR DTC144EE-TL (8-729-928-82)	A	Q1217	FQTW0013-01	W. TRANSISTOR XP6401-TX (8-729-427-82)	A
				Q1218	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
				Q1219	FQTW0021-01	W. TRANSISTOR XP6213-TX (8-729-428-46)	A
				Q1220	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
				Q1221	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
				Q1222	FQTA0008-01	TRANSISTOR 2SA1774TL	A
				Q1223	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
				Q1224	FQTA0008-01	TRANSISTOR 2SA1774TL	A

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF120SW PARTS LIST

FSS

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
Q1225	FQTC0008-01	TRANSISTOR 2SC4617 TL	A	R932	REB03-390JC	RESISTOR 39 1/16W 5%	A
Q1226	FQTC0008-01	TRANSISTOR 2SC4617 TL	A	R933	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
Q1227	FQTA0008-01	TRANSISTOR 2SA1774TL	A	R934	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
Q1350	FQTC0008-01	TRANSISTOR 2SC4617 TL	A	R935	REB03-271JC	RESISTOR 270 1/16W 5%	A
Q1351	FQTA0008-01	TRANSISTOR 2SA1774TL	A	R936	REB03-221JC	RESISTOR 220 1/16W 5%	A
----- RESISTOR -----				R937	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R851	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R938	REB03-333JC	RESISTOR 33K 1/16W 5%	A
R852	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R940	REB03-821JC	RESISTOR 820 1/16W 5%	A
R853	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R941	REB03-751JC	RESISTOR 750 1/16W 5%	A
R854	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R942	REB03-682JC	RESISTOR 6.8K 1/16W 5%	A
R863	REB03-152JC	RESISTOR 1.5K 1/16W 5%	A	R945	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R864	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R946	REB03-821JC	RESISTOR 820 1/16W 5%	A
R865	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R947	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A
R866	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A	R948	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R867	REB03-563JC	RESISTOR 56K 1/16W 5%	A	R949	REB03-153JC	RESISTOR 15K 1/16W 5%	A
R868	REB03-123JC	RESISTOR 12K 1/16W 5%	A	R950	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R869	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R957	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R870	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R958	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R871	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R959	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R872	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A	R960	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R873	REB03-393JC	RESISTOR 39K 1/16W 5%	A	R970	REB03-0000C	RESISTOR 0 1/16W 5%	A
R874	REB03-183JC	RESISTOR 18K 1/16W 5%	A	R1101	REB03-333JC	RESISTOR 33K 1/16W 5%	A
R875	REB03-333JC	RESISTOR 33K 1/16W 5%	A	R1102	REB03-562JC	RESISTOR 5.6K 1/16W 5%	A
R876	REB03-183JC	RESISTOR 18K 1/16W 5%	A	R1103	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A
R877	REB03-123JC	RESISTOR 12K 1/16W 5%	A	R1104	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A
R878	REB03-563JC	RESISTOR 56K 1/16W 5%	A	R1105	FR0002-473J	N. RESISTOR 47K x2 5%	A
R879	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R1108	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R880	REB03-152JC	RESISTOR 1.5K 1/16W 5%	A	R1109	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R881	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R1110	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R882	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R1111	FR0003-473J	N. RESISTOR 47K x4 5%	A
R883	REB03-153JC	RESISTOR 15K 1/16W 5%	A	R1113	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R884	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A	R1114	REB03-334JC	RESISTOR 330K 1/16W 5%	A
R885	REB03-133JC	RESISTOR 13K 1/16W 5%	A	R1115	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R886	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R1116	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R894	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R1117	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R895	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R1118	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R900	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R1119	FRE011-243F	RESISTOR 24K 1/16W 1%	A
R901	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R1120	FRE011-224F	RESISTOR 220K 1/16W 1%	A
R902	REB03-152JC	RESISTOR 1.5K 1/16W 5%	A	R1121	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R903	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R1122	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R904	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R1123	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R905	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A	R1124	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R906	REB03-563JC	RESISTOR 56K 1/16W 5%	A	R1125	REB03-474JC	RESISTOR 470K 1/16W 5%	A
R907	REB03-123JC	RESISTOR 12K 1/16W 5%	A	R1126	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R908	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R1127	FR0002-102J	N. RESISTOR 1K x2 5%	A
R909	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R1129	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R910	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R1130	REB03-913JC	RESISTOR 91K 1/16W 5%	A
R911	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R1131	REB03-124JC	RESISTOR 120K 1/16W 5%	A
R912	REB03-333JC	RESISTOR 33K 1/16W 5%	A	R1132	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A
R913	REB03-183JC	RESISTOR 18K 1/16W 5%	A	R1135	REB03-154JC	RESISTOR 150K 1/16W 5%	A
R914	REB03-333JC	RESISTOR 33K 1/16W 5%	A	R1136	FR0003-102J	N. RESISTOR 1K x4 5%	A
R915	REB03-183JC	RESISTOR 18K 1/16W 5%	A	R1137	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R916	REB03-123JC	RESISTOR 12K 1/16W 5%	A	R1138	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R917	REB03-563JC	RESISTOR 56K 1/16W 5%	A	R1139	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R918	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R1140	FRE011-154F	RESISTOR 150K 1/16W 1%	A
R919	REB03-152JC	RESISTOR 1.5K 1/16W 5%	A	R1141	FRE011-273F	RESISTOR 27K 1/16W 1%	A
R920	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R1142	REB03-154JC	RESISTOR 150K 1/16W 5%	A
R921	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R1143	FRE03-104JC	RESISTOR 100K 1/16W 5%	A
R922	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A	R1145	REB03-225JC	RESISTOR 2.2M 1/16W 5%	A
R923	REB03-153JC	RESISTOR 15K 1/16W 5%	A	R1146	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R924	REB03-133JC	RESISTOR 13K 1/16W 5%	A	R1147	FR0003-473J	N. RESISTOR 47K x4 5%	A
R925	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R1149	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R930	REB03-680JC	RESISTOR 68 1/16W 5%	A	R1150	REB03-224JC	RESISTOR 220K 1/16W 5%	A
R931	REB03-561JC	RESISTOR 560 1/16W 5%	A	R1151	REB03-104JC	RESISTOR 100K 1/16W 5%	A
				R1152	REB03-101JC	RESISTOR 100 1/16W 5%	A

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
R1153	REB03-105JC	RESISTOR 1M 1/16W 5%	A	R1255	REB03-224JC	RESISTOR 220K 1/16W 5%	A
R1154	REB03-224JC	RESISTOR 220K 1/16W 5%	A	R1256	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R1155	REB03-334JC	RESISTOR 330K 1/16W 5%	A	R1259	FRE011-473F	RESISTOR 47K 1/16W 1%	A
R1156	REB03-334JC	RESISTOR 330K 1/16W 5%	A	R1260	FRE011-473F	RESISTOR 47K 1/16W 1%	A
R1157	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R1261	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R1158	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R1262	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R1159	FRO002-104J	N.RESISTOR 100K x2 5%	A	R1263	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R1160	FRO002-473J	N.RESISTOR 47K x2 5%	A	R1264	REB03-334JC	RESISTOR 330K 1/16W 5%	A
R1162	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R1265	FRO002-103J	N.RESISTOR 10K x2 5%	A
R1164	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R1266	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R1165	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R1267	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R1166	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R1268	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R1167	REB03-334JC	RESISTOR 330K 1/16W 5%	A	R1269	RED04-681JE	RESISTOR 680 1/8W 5%	A
R1168	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R1270	RED04-681JE	RESISTOR 680 1/8W 5%	A
R1169	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R1271	RED04-681JE	RESISTOR 680 1/8W 5%	A
R1171	REB03-474JC	RESISTOR 470K 1/16W 5%	A	R1272	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R1201	REB03-0000C	RESISTOR 0 1/16W 5%	A	R1273	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R1202	REB03-682JC	RESISTOR 6.8K 1/16W 5%	A	R1274	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R1203	REB03-0000C	RESISTOR 0 1/16W 5%	A	R1275	REB03-821JC	RESISTOR 820 1/16W 5%	A
R1204	FRE011-333F	RESISTOR 33K 1/16W 1%	A	R1276	FRO002-103J	N.RESISTOR 10K x2 5%	A
R1205	REB03-0000C	RESISTOR 0 1/16W 5%	A	R1277	REB03-2R2JC	RESISTOR 2.2 1/16W 5%	A
R1206	REB03-331JC	RESISTOR 330 1/16W 5%	A	R1278	REB03-2R2JC	RESISTOR 2.2 1/16W 5%	A
R1207	FRO002-473J	N.RESISTOR 47K x2 5%	A	R1279	REB03-2R2JC	RESISTOR 2.2 1/16W 5%	A
R1208	FRE011-122F	RESISTOR 1.2K 1/16W 1%	A	R1280	REB03-823JC	RESISTOR 82K 1/16W 5%	A
R1209	FRE011-154F	RESISTOR 150K 1/16W 1%	A	R1281	FRO002-103J	N.RESISTOR 10K x2 5%	A
R1210	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R1282	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R1211	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A	R1283	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R1212	REB03-333JC	RESISTOR 33K 1/16W 5%	A	R1284	REB03-823JC	RESISTOR 82K 1/16W 5%	A
R1213	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R1285	FRO002-103J	N.RESISTOR 10K x2 5%	A
R1214	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R1287	REB03-393JC	RESISTOR 39K 1/16W 5%	A
R1215	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A	R1288	REB03-471JC	RESISTOR 470 1/16W 5%	A
R1216	REB03-154JC	RESISTOR 150K 1/16W 5%	A	R1289	FRO002-103J	N.RESISTOR 10K x2 5%	A
R1217	REB03-0000C	RESISTOR 0 1/16W 5%	A	R1291	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R1220	RED04-101JE	RESISTOR 100 1/8W 5%	A	R1292	REB03-153JC	RESISTOR 15K 1/16W 5%	A
R1221	REB03-393JC	RESISTOR 39K 1/16W 5%	A	R1293	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R1222	REC01-1R0JD	RESISTOR 1 1/10W 5%	A	R1294	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R1223	RED04-121JE	RESISTOR 120 1/8W 5%	A	R1295	FRO002-103J	N.RESISTOR 10K x2 5%	A
R1224	REC01-1R0JD	RESISTOR 1 1/10W 5%	A	R1296	REB03-393JC	RESISTOR 39K 1/16W 5%	A
R1225	REB03-683JC	RESISTOR 68K 1/16W 5%	A	R1297	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R1226	REB03-0000C	RESISTOR 0 1/16W 5%	A	R1298	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R1227	REC01-1R0JD	RESISTOR 1 1/10W 5%	A	R1299	REB03-473JC	RESISTOR 47K 1/16W 5%	A
R1228	REC01-1R0JD	RESISTOR 1 1/10W 5%	A	R1300	REB03-122JC	RESISTOR 1.2K 1/16W 5%	A
R1229	REC01-1R0JD	RESISTOR 1 1/10W 5%	A	R1301	REB03-122JC	RESISTOR 1.2K 1/16W 5%	A
R1230	REC01-1R0JD	RESISTOR 1 1/10W 5%	A	R1302	FRO002-103J	N.RESISTOR 10K x2 5%	A
R1231	REB03-301JC	RESISTOR 300 1/16W 5%	A	R1303	FRO002-471J	N.RESISTOR 470 x2 5%	A
R1232	REB03-122JC	RESISTOR 1.2K 1/16W 5%	A	R1304	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R1233	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R1305	REB03-271JC	RESISTOR 270 1/16W 5%	A
R1234	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R1306	REB03-181JC	RESISTOR 180 1/16W 5%	A
R1235	REB03-823JC	RESISTOR 82K 1/16W 5%	A	R1307	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R1236	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R1308	REB03-821JC	RESISTOR 820 1/16W 5%	A
R1237	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R1309	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R1238	REB03-823JC	RESISTOR 82K 1/16W 5%	A	R1310	REB03-393JC	RESISTOR 39K 1/16W 5%	A
R1239	FRO002-103J	N.RESISTOR 10K x2 5%	A	R1311	REB03-183JC	RESISTOR 18K 1/16W 5%	A
R1240	FRO002-104J	N.RESISTOR 100K x2 5%	A	R1313	REB03-822JC	RESISTOR 8.2K 1/16W 5%	A
R1241	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A	R1314	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R1242	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A	R1315	REB03-393JC	RESISTOR 39K 1/16W 5%	A
R1243	REB03-153JC	RESISTOR 15K 1/16W 5%	A	R1316	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R1245	REB03-124JC	RESISTOR 120K 1/16W 5%	A	R1317	REB03-154JC	RESISTOR 150K 1/16W 5%	A
R1246	REB03-124JC	RESISTOR 120K 1/16W 5%	A	R1318	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R1247	REB03-474JC	RESISTOR 470K 1/16W 5%	A	R1320	REB03-333JC	RESISTOR 33K 1/16W 5%	A
R1250	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R1321	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R1251	REB03-122JC	RESISTOR 1.2K 1/16W 5%	A	R1322	REB03-822JC	RESISTOR 8.2K 1/16W 5%	A
R1252	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R1323	REB03-682JC	RESISTOR 6.8K 1/16W 5%	A
R1253	REB03-334JC	RESISTOR 330K 1/16W 5%	A	R1325	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R1254	FRO003-104J	N.RESISTOR 100K x4 5%	A	R1326	REB03-101JC	RESISTOR 100 1/16W 5%	A

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF120SW PARTS LIST

FSS **FSW**

Ref.No.	Part No.	Description	Price
R1327	REB03-121JC	RESISTOR 120 1/16W 5%	A
R1328	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R1329	FR0002-104J	N. RESISTOR 100K x2	A
R1330	REB03-682JC	RESISTOR 6.8K 1/16W 5%	A
R1331	REB03-823JC	RESISTOR 82K 1/16W 5%	A
R1332	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R1333	REB03-334JC	RESISTOR 330K 1/16W 5%	A
R1334	FR0002-332J	N. RESISTOR 3.3K x2	A
R1335	FR0002-103J	N. RESISTOR 10K x2	A
R1336	REB03-273JC	RESISTOR 27K 1/16W 5%	A
R1337	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R1338	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R1339	FR0002-332J	N. RESISTOR 3.3K x2	A
R1340	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R1341	REB03-273JC	RESISTOR 27K 1/16W 5%	A
R1342	REB03-564JC	RESISTOR 560K 1/16W 5%	A
R1343	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R1350	REB03-183JC	RESISTOR 18K 1/16W 5%	A
R1351	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R1352	REB03-391JC	RESISTOR 390 1/16W 5%	A
R1353	REB03-122JC	RESISTOR 1.2K 1/16W 5%	A
R1354	REB03-241JC	RESISTOR 240 1/16W 5%	A
R1356	REB03-102JC	RESISTOR 1K 1/16W 5%	A
----- VARIABLE RESISTOR -----			
RV851	FRU007-472N	V. RESISTOR 4.7K B 25% 2.2MM	A
RV852	FRU007-472N	V. RESISTOR 4.7K B 25% 2.2MM	A
RV853	FRU007-472N	V. RESISTOR 4.7K B 25% 2.2MM	A
RV854	FRU007-472N	V. RESISTOR 4.7K B 25% 2.2MM	A
RV855	FRU007-472N	V. RESISTOR 4.7K B 25% 2.2MM	A
RV856	FRU007-472N	V. RESISTOR 4.7K B 25% 2.2MM	A
RV857	FRU007-472N	V. RESISTOR 4.7K B 25% 2.2MM	A
RV858	FRU007-472N	V. RESISTOR 4.7K B 25% 2.2MM	A
RV1101	FRU007-473N	V. RESISTOR 47K B 25% 2.2MM	A
RV1201	FRU007-474N	V. RESISTOR 470K B 25% 2.2MM	A
----- FLEXIBLE BOARD -----			
W851	FZ00421-100	FPC, FP-28U W/8P CONNECTOR (JAE)	F
W1100	FZ00278-100	FPC, FP-12	E
W1102	FZ00422-100	FPC, FP-30U W/22P CONNECTOR (JAE)	E
W1103	FZ00411-100	FPC, FP-32BU W/20P CONNECTOR (AMP)	G
W1104	FZ00182-100	FPC ASSY, FP-1	E
W1105	FZ00426-200	WIRE HARNESS WH-3U BO-SO 4P FSS-FEL	B
----- CRYSTAL VIBRATOR -----			
X1101	FZ00460-100	X' TAL C-001R 32.768KHZ W/TUBE	A
X1102	FZ00010-100	OSC 4.194M CHIP SERALOCK	A
X1201	FZ00400-100	X' TAL CX-5F 16000KHZ	C
X1202	FZ00458-100	X' TAL CX-5F 5859.38KHZ	C

Ref.No.	Part No.	Description	Price

	CB0055-A102	FSW PWB ASSY	N.S.

----- CONNECTOR -----			
CN1501	FGC006-0141	CONNECTOR 14P 1.25MM B TO B	B
CN1502	FGA028-0041	CONNECTOR 4P 1.25MM STRAIGHT GRAY	A
----- DIODE -----			
D1501	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
D1502	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
D1503	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
D1504	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
D1505	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
D1506	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
D1507	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
D1508	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
D1509	FQDW0008-01	DIODE MA132WA-TX	A
	(8-719-421-72)		
D1510	FQDW0008-01	DIODE MA132WA-TX	A
	(8-719-421-72)		
D1511	FQDW0008-01	DIODE MA132WA-TX	A
	(8-719-421-72)		
D1512	FQDW0008-01	DIODE MA132WA-TX	A
	(8-719-421-72)		
D1513	FQDW0008-01	DIODE MA132WA-TX	A
	(8-719-421-72)		
D1514	FQDW0008-01	DIODE MA132WA-TX	A
	(8-719-421-72)		
D1515	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
D1516	FQDW0008-01	DIODE MA132WA-TX	A
	(8-719-421-72)		
D1517	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
D1518	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
----- COIL -----			
L1501	FLA021-1R0K	COIL 1UH 10%	A
L1502	FLA021-1R0K	COIL 1UH 10%	A
L1503	FLA021-1R0K	COIL 1UH 10%	A
L1504	FLA021-1R0K	COIL 1UH 10%	A
L1505	FLA021-1R0K	COIL 1UH 10%	A
L1506	FLA021-1R0K	COIL 1UH 10%	A
L1507	FLA021-1R0K	COIL 1UH 10%	A
L1508	FLA021-1R0K	COIL 1UH 10%	A
L1509	FLA021-1R0K	COIL 1UH 10%	A
----- SWITCH -----			
SW1501	FSW20-0100A	TACT SWITCH	A
SW1502	FSW20-0100A	TACT SWITCH	A
SW1503	FSW20-0100A	TACT SWITCH	A
SW1504	FSW20-0100A	TACT SWITCH	A
SW1505	FSW20-0100A	TACT SWITCH	A
SW1506	FSW20-0100A	TACT SWITCH	A
SW1507	FSW20-0100A	TACT SWITCH	A
SW1508	FSW20-0100A	TACT SWITCH	A
SW1509	FSW20-0100A	TACT SWITCH	A
SW1510	FSW20-0100A	TACT SWITCH	A
----- WIRE HARNESS -----			
W1501	FZ00196-200	WIRE HARNESS WH-2 BO-SO 4P FSW-FRC	B

When indicating parts by reference number, please include the board name.

FVA

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
*****				C489	CCH01-101JC	CERAMIC CAP 100PF CH J 50V A	
	CB0053-B103	FVA PWB ASSY	VG		(1-162-927-91)		
	*****			C490	CCH01-181JC	CERAMIC CAP 180PF CH J 50V A	
	BB01503-100	WIRE #30-63, FVA	N.S.	C491	CCH01-101JC	CERAMIC CAP 100PF CH J 50V A	
	BB01105-100	CASE A, SHIELD, FVA	N.S.		(1-162-927-91)		
	BB00287-100	PLATE, MOUNT, FVA	B	C492	CCH01-560JC	CERAMIC CAP 56PF CH J 50V A	
	ATA2023-ONC	SCREW, 20*30 P2 C	A	C493	CBF01-223KC	CERAMIC CAP 0.022MF B K 25V A	
	----- CAPACITOR -----			C494	CBH01-102JC	CERAMIC CAP 1000PF B J 50V A	
C453	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V A		C495	CCH01-181JC	CERAMIC CAP 180PF CH J 50V A	
	(1-164-634-91)			C496	CBH01-222KC	CERAMIC CAP 2200PF B K 50V A	
C454	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-966-91)		
	(1-162-970-91)			C497	CCH01-270JC	CERAMIC CAP 27PF CH J 50V A	
C455	CCH01-150JC	CERAMIC CAP 15PF CH J 50V A			(1-162-927-91)		
C456	FCA01-475MG	E.CAP 4.7MF 35V 20% A		C498	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A	
C457	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-135-177-XX)		
	(1-162-970-91)			C499	CCH01-560JC	CERAMIC CAP 56PF CH J 50V A	
C458	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A		C500	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A A	
C459	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-135-157-XX)		
	(1-162-970-91)			C501	CCH01-121JC	CERAMIC CAP 120PF CH J 50V A	
C460	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-162-928-91)		
	(1-162-970-91)			C502	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A A	
C461	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-135-157-XX)		
	(1-162-970-91)			C503	CCH01-220JC	CERAMIC CAP 22PF CH J 50V A	
C462	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C504	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-162-970-91)				(1-162-970-91)		
C463	CTB10-336MA	TANTALUM CAP 33MF 6.3V 20% C A		C505	CCH01-330JC	CERAMIC CAP 33PF CH J 50V A	
	(1-135-162-91)				(1-162-921-91)		
C464	CBH01-102JC	CERAMIC CAP 1000PF B J 50V A		C506	CCH01-680JC	CERAMIC CAP 68PF CH J 50V A	
C465	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C507	CCH01-180JC	CERAMIC CAP 18PF CH J 50V A	
	(1-162-970-91)			C508	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A	
C466	CBF01-223KC	CERAMIC CAP 0.022MF B K 25V A			(1-135-177-XX)		
C467	CTB10-336MA	TANTALUM CAP 33MF 6.3V 20% C A		C509	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A	
	(1-135-162-91)				(1-162-923-91)		
C468	CCH01-680JC	CERAMIC CAP 68PF CH J 50V A		C510	CCH01-561JC	CERAMIC CAP 560PF CH J 50V A	
C469	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C511	CBF01-223KC	CERAMIC CAP 0.022MF B K 25V A	
	(1-162-970-91)			C513	CBH01-332KC	CERAMIC CAP 3300PF B K 50V A	
C470	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A			(1-162-967-91)		
C471	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C514	CCH01-820JC	CERAMIC CAP 82PF CH J 50V A	
	(1-162-970-91)				(1-162-926-91)		
C472	CBF01-223KC	CERAMIC CAP 0.022MF B K 25V A		C516	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A	
C473	CBH01-222KC	CERAMIC CAP 2200PF B K 50V A		C517	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-162-966-91)				(1-162-970-91)		
C474	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C518	CCH01-560JC	CERAMIC CAP 56PF CH J 50V A	
C475	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V A		C519	CCH01-560JC	CERAMIC CAP 56PF CH J 50V A	
C476	CBH01-102JC	CERAMIC CAP 1000PF B J 50V A		C520	CFD01-473ZC	CERAMIC CAP 0.047MF F Z 16V A	
C477	CCH01-470JC	CERAMIC CAP 47PF CH J 50V A					
	(1-162-923-91)			C521	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X A	
C478	CCH01-330JC	CERAMIC CAP 33PF CH J 50V A		C522	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A	
	(1-162-921-91)				(1-162-970-91)		
C480	CCH01-330JC	CERAMIC CAP 33PF CH J 50V A		C523	CFD01-473ZC	CERAMIC CAP 0.047MF F Z 16V A	
	(1-162-921-91)			C524	FCA01-227MA	E.CAP 220MF 4V 20% A A	
C481	CBF01-223KC	CERAMIC CAP 0.022MF B K 25V A			(1-126-210-21)		
C482	FCT08-335MC	TANTALUM CAP 3.3MF 10V 20% A A		C525	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A A	
	(1-135-180-XX)				(1-135-157-XX)		
C483	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A		C526	FCT07-474MF	TANTALUM CAP 0.47MF 25V 20% A A	
	(1-162-970-91)				(1-135-083-91)		
C484	CCH01-271JC	CERAMIC CAP 270PF CH J 50V A		C527	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A	
C485	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-135-177-XX)		
	(1-162-970-91)			C528	FCT08-475MC	TANTALUM CAP 4.7MF 10V 20% A A	
C486	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K A			(1-135-210-XX)		
	(1-162-970-91)			C529	FCT08-225MD	TANTALUM CAP 2.2MF 16V 20% A A	
C487	CCH01-120JC	CERAMIC CAP 12PF CH J 50V A			(1-135-179-XX)		
	(1-162-916-91)			C530	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A A	
C488	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A A			(1-135-177-XX)		
	(1-135-157-XX)			C531	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A A	
					(1-135-157-XX)		
				C532	CCH01-471JC	CERAMIC CAP 470PF CH J 50V A	
				C533	CTC11-476MA	TANTALUM CAP 10V 47UF 20% D2 B	
				C534	CTB10-336MA	TANTALUM CAP 33MF 6.3V 20% C A	
					(1-135-162-91)		

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3 Electrical Parts

FF120SW PARTS LIST

FVA

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
C535	CTC11-476MA	TANTALUM CAP 10V 47UF 20% D2	B	C578	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X	A
C536	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A	C579	CCH01-270JC	CERAMIC CAP 27PF CH J 50V	A
	(1-162-970-91)			C581	CCH01-560JC	CERAMIC CAP 56PF CH J 50V	A
C537	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A	C582	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A
	(1-162-970-91)				(1-162-970-91)		
C538	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X	A	C583	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A	A
C539	CCH01-220JC	CERAMIC CAP 22PF CH J 50V	A		(1-135-177-XX)		
C540	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V	A	C584	CCH01-220JC	CERAMIC CAP 22PF CH J 50V	A
	(1-164-634-91)			C585	CCH01-221JC	CERAMIC CAP 220PF CH J 50V	A
C541	CCH01-331GC	CERAMIC CAP 330PF CH G 50V	A	C586	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A
C542	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A		(1-162-970-91)		
	(1-162-970-91)			C587	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X	A
C543	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A	A	C588	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A	A
C544	CCH01-391GC	CERAMIC CAP 390PF CH G 50V	A		(1-135-157-XX)		
C545	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A	C589	FCT07-684ME	TANTALUM CAP 0.68MF 20V 20% A	A
	(1-162-970-91)				(1-135-087-XX)		
C546	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A	A	C590	CBF01-223KC	CERAMIC CAP 0.022MF B K 25V	A
	(1-135-157-XX)			C591	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A
C547	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A	A		(1-162-970-91)		
	(1-135-157-XX)			C592	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A	A
C548	CTB10-336MA	TANTALUM CAP 33MF 6.3V 20% C	A		(1-135-177-XX)		
	(1-135-162-91)			C593	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A	A
C549	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A	A		(1-135-177-XX)		
	(1-135-157-XX)			C594	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V	A
C550	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X	A		(1-164-634-91)		
C551	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A	C595	CCH01-151JC	CERAMIC CAP 150PF CH J 50V	A
	(1-162-970-91)			C596	CBH01-682KC	CERAMIC CAP 6800PF B K 50V	A
C552	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A	C597	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A
	(1-162-970-91)				(1-162-970-91)		
C553	FCT08-335MC	TANTALUM CAP 3.3MF 10V 20% A	A	C598	CTC11-476MA	TANTALUM CAP 10V 47UF 20% D2	B
	(1-135-180-XX)						
C554	FCT08-335MC	TANTALUM CAP 3.3MF 10V 20% A	A	C599	FCT14-685MD	TANTALUM CAP 16V 6.8MF20% X	A
	(1-135-180-XX)			C600	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A
C555	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A	A		(1-162-970-91)		
	(1-135-157-XX)			C601	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X	A
C556	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A	A	C602	CCH01-820JC	CERAMIC CAP 82PF CH J 50V	A
	(1-135-157-XX)				(1-162-926-91)		
C557	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A	A	C603	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A
	(1-135-157-XX)				(1-162-970-91)		
C558	CCH01-151JC	CERAMIC CAP 150PF CH J 50V	A	C604	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A
C559	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X	A		(1-162-970-91)		
C560	FCT07-474MF	TANTALUM CAP 0.47MF 25V 20% A	A	C605	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V	A
	(1-135-083-91)			C606	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V	A
C561	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V	A	C607	CTC11-476MA	TANTALUM CAP 10V 47UF 20% D2	B
C562	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A	C608	CBH01-222KC	CERAMIC CAP 2200PF B K 50V	A
	(1-162-970-91)				(1-162-966-91)		
C563	CCH01-151JC	CERAMIC CAP 150PF CH J 50V	A	C701	CFD01-473ZC	CERAMIC CAP 0.047MF F Z 16V	A
C564	CCH01-151JC	CERAMIC CAP 150PF CH J 50V	A	C702	CTB10-336MA	TANTALUM CAP 33MF 6.3V 20% C	A
				C703	FCT08-105MF	TANTALUM CAP 1MF 25V 20% B	A
C565	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A	A	C704	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A
	(1-135-157-XX)			C705	CFF01-104ZC	CERAMIC CAP 0.1MF F Z 25V	A
C566	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A				
	(1-162-970-91)			C706	CBH01-102JC	CERAMIC CAP 1000PF B J 50V	A
C567	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A		(1-162-970-91)		
	(1-162-970-91)			C707	CFD01-473ZC	CERAMIC CAP 0.047MF F Z 16V	A
C568	CCH01-181JC	CERAMIC CAP 180PF CH J 50V	A	C708	CTB10-336MA	TANTALUM CAP 33MF 6.3V 20% C	A
C569	CCH01-150JC	CERAMIC CAP 15PF CH J 50V	A	C709	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A	A
				C710	CCH01-220JC	CERAMIC CAP 22PF CH J 50V	A
C570	CCH01-560JC	CERAMIC CAP 56PF CH J 50V	A	C712	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A
C571	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A	A		(1-135-157-XX)		
	(1-135-157-XX)			C713	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X	A
C572	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A	A		(1-135-157-XX)		
	(1-135-157-XX)			C714	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A
C573	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A	A	C715	CCH01-111JC	CERAMIC CAP 110PF CH J 50V	A
	(1-135-177-XX)						
C574	CCH01-181JC	CERAMIC CAP 180PF CH J 50V	A	C716	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V	A
				C717	FCT08-105MF	TANTALUM CAP 1MF 25V 20% A	A
C575	FCT08-106MB	TANTALUM CAP 10MF 7V 20% A	A	C718	CTF08-105MA	TANTALUM CAP 1MF 25V 20% A	A
	(1-135-157-XX)			C719	CBH01-102JC	CERAMIC CAP 1000PF B J 50V	A
C576	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A		(1-162-970-91)		
	(1-162-970-91)			C720	CCH01-100DC	CERAMIC CAP 10PF CH D 50V	A
C577	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X	A	C721	CCH01-101JC	CERAMIC CAP 100PF CH J 50V	A

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
C722	FCT08-475MC	TANTALUM CAP 4.7MF 10V 20% A	A	----- TRIMMER -----			
C722	CTC03-475MA	TANTALUM CAP 10V 4.7MF20% A	A	CT451	FCY03-300RK	TRIMMER CAP 30PF 100V 0.5 (1-141-424-61)	A
C723	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A	----- DIODE -----			
C724	CCH01-3R0DC	CERAMIC CAP 3PF CJ D 50V	A	D454	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
C725	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A	D455	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
C726	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A	D457	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
C727	CCH01-150JC	CERAMIC CAP 15PF CH J 50V	A	D458	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
C728	CCH01-150JC	CERAMIC CAP 15PF CH J 50V	A	D459	FQDZ0001-01	ZENER DIODE MA8082M-TX	A
C729	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A	D460	FQDY0009-01	SHOTKEY DIODE MA728-TX (8-719-421-28)	A
C730	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K	A	D461	FQDW0001-01	DIODE MA110-TX (8-719-404-47)	A
C731	CBH01-102JC	CERAMIC CAP 1000PF B J 50V	A	D462	QDY10-010RA	DIODE 1SS123-T1 (8-719-104-22)	A
C1801	CFH01-473ZC	CERAMIC CAP 0.047MF F Z 50V	A	D463	FQDW0001-01	DIODE MA110-TX (8-719-404-47)	A
C1803	CTC11-476MA	TANTALUM CAP 10V 47UF 20% D2 B	B	D464	FQDW0017-01	DIODE DAN222-TL (8-719-989-04)	A
C1805	CBH01-102KC	CERAMIC CAP 1000PF B K 50V	A	D465	FQDW0017-01	DIODE DAN222-TL (8-719-989-04)	A
C1806	CBH01-102KC	CERAMIC CAP 1000PF B K 50V (1-162-964-91)	A	D466	FQDW0017-01	DIODE DAN222-TL (8-719-989-04)	A
C1808	CFH01-473ZC	CERAMIC CAP 0.047MF F Z 50V	A	D701	FQDW0001-01	DIODE MA110-TX	A
C1810	CCH01-220JC	CERAMIC CAP 22PF CH J 50V	A	D702	FQDW0001-01	DIODE MA110-TX	A
C1811	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V (1-164-634-91)	A	D1004	FQDW0001-01	DIODE MA110-TX (8-719-404-47)	A
C1812	CRD01-333KC	CERAMIC CAP 0.033MF R K 16V	A	----- FILTER -----			
C1813	CTB10-336MA	TANTALUM CAP 33MF 6.3V 20% C	A	FL451	FLLF0015-00	Y LPF (1H CCD) TH355LNK-5055=P1	C
C1814	FCT08-475MB	TANTALUM CAP 4.7MF 7V 20% A (1-135-181-XX)	A	FL452	FLLF0043-00	LPF H356LNM-6237-P1 Y.4MHZ 4FT TP:P1	D
C1815	FCA01-106MD	E. CAP 10MF 16V 20% (1-124-779-21)	A	FL453	FLBF0021-00	BPF H354BAI-6290=P1 C 4.43MHZ 4FUS TP:P1	B
C1816	CBH01-103KC	CERAMIC CAP 0.01MF 50V B K (1-162-970-91)	A	FL454	K1236-18621	BPF A353BCH-2866ESAR=P1 4FS	B
C1817	CRD01-333KC	CERAMIC CAP 0.033MF R K 16V	A	FL455	FZ00429-100	CERAMIC FILTER SFSLS5.17MDB	A
C1818	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V (1-164-634-91)	A	FL701	FLLF0032-00	LPF H355LSK-6099=P1 2.7MHZ LPF TP:P1	C
C1819	CTC11-476MA	TANTALUM CAP 10V 47UF 20% D2 B	B	FL702	FLBF0022-00	BPF H354BAI-6352=P1 C 4.43MHZ 4FUS TP:P1	B
C1820	FCT08-475MB	TANTALUM CAP 4.7MF 7V 20% A (1-135-181-XX)	A	----- IC -----			
C1821	CBH01-222KC	CERAMIC CAP 2200PF B K 50V (1-162-966-91)	A	IC451	FQHD0016-00	IC UPD6453GT-602-E1 CHARAGENE	H
C1822	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V (1-164-634-91)	A	IC452	FQSC0015-01	IC UPD4094BG-T1 SER./PARA. CONV.	C
C1824	CCH01-560JC	CERAMIC CAP 56PF CH J 50V	A	IC453	FQHD0116-00	IC MSM5258MS-K-R3 NTSC/PAL SYNC GEN.	E
C1825	CCH01-221JC	CERAMIC CAP 220PF CH J 50V	A	IC454	FQHD0068-00	IC TC4S69F TE85R	A
C1826	FCT08-475MB	TANTALUM CAP 4.7MF 7V 20% A (1-135-181-XX)	A	IC455	FQHA0056-00	IC CXL5502M-T3 1HCCD (8-752-339-53)	E
C1827	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V (1-164-634-91)	A	IC456	FQHA0171-00	IC BA7046F-T1 SYNC SEP.	C
C1828	FCT14-106MC	TANTALUM CAP 10MF 10V 20% X	A	IC457	FQHD0068-00	IC TC4S69F TE85R	A
C1829	CBH01-222KC	CERAMIC CAP 2200PF B K 50V (1-162-966-91)	A	IC458	FQSE0052-01	IC UPD74HC4053G-T1 ANALOG SW:3	C
C1831	CTC11-476MA	TANTALUM CAP 10V 47UF 20% D2 B	B	IC459	FQHA0057-00	IC CXA1207AR-T5 Y VIDEO (8-752-054-63)	K
C1832	CTC11-476MA	TANTALUM CAP 10V 47UF 20% D2 B	B	IC460	FQHA0117-00	IC IC-LVA523F-2	B
C1833	CBH01-222KC	CERAMIC CAP 2200PF B K 50V (1-162-966-91)	A	IC461	FQHA0166-00	IC MM1031XM-T1 6DB AMP	B
C1834	CBH01-222KC	CERAMIC CAP 2200PF B K 50V (1-162-966-91)	A	IC462	FQHA0117-00	IC IC-LVA523F-2	B
C1835	CTC10-226MA	TANTALUM CAP 10V 22MF 20% C (1-135-161-91)	A	IC463	FQHA0058-00	IC CXA1208R-T3 C VIDEO (8-752-051-41)	J
C1836	CFD01-105ZD	CERAMIC CAP 1MF F Z 16V (1-164-634-91)	A	IC464	FQHA0117-00	IC IC-LVA523F-2	B
C1837	CFH01-473ZC	CERAMIC CAP 0.047MF F Z 50V	A	IC701	FQHA0167-00	IC CXL1506M-T3/T4 1H/2H CCD DELAY	G
C1838	CFH01-473ZC	CERAMIC CAP 0.047MF F Z 50V	A	IC702	FQHA0118-00	IC CXA1203N-T3 JOG CHROMA PROCESS	H
----- CONNECTOR -----				IC1801	FQHA0065-00	IC LA7454W	J
CN451	FGC008-0082	CONNECTOR 8P 1.25MM B TO B	A	IC1803	QID21-240RA	IC TC4S71F TE85R	A
CN453	FGA028-0041	CONNECTOR 4P 1.25MM STRAIGHT GRAY	A	When indicating parts by reference number, please include the board name.			
CN454	FGC008-0222	CONNECTOR 22P 1.25MM B TO B	B				

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF120SW PARTS LIST

FVA

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
----- COIL -----							
L451	LA007-1ROMA	COIL 1UH 20%	A	Q453	FQTA0008-01	TRANSISTOR 2SA1774TL	A
L452	LA003-560JF	COIL 56UH 5%	A	Q454	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A
L453	LA007-101KA	COIL 100UH 10% Q20	A	Q455	FQTA0008-01	TRANSISTOR 2SA1774TL	A
L454	LA007-101KA	COIL 100UH 10% Q20	A	Q456	FQTA0008-01	TRANSISTOR 2SA1774TL	A
L455	LA007-101KA	COIL 100UH 10% Q20	A	Q457	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
L456	LA007-101KA	COIL 100UH 10% Q20	A	Q458	FQTA0008-01	TRANSISTOR 2SA1774TL	A
L457	LA003-4R7JF	COIL 4.7UH 5%	A	Q460	FQTC0009-01	TRANSISTOR 2SC4099 T106	A
L458	LA003-181JF	COIL 180UH 5% Q20	A	Q461	FQTP0002-01	W. TRANSISTOR XP6213-TX	A
L459	LA004-471JG	COIL 470UH 5% Q40	A	Q462	FQTA0008-01	TRANSISTOR 2SA1774TL	A
L460	LA004-331JG	COIL 330UH 5%	A	Q463	FQTP0003-01	D. TRANSISTOR DTA144EE-TL	A
L461	LA003-181JF	COIL 180UH 5% Q20	A	Q464	FQTC0009-01	TRANSISTOR 2SC4099 T106	A
L462	LA003-101JF	COIL 100UH 5%	A	Q465	FQTC0009-01	TRANSISTOR 2SC4099 T106	A
L463	LA004-331JG	COIL 330UH 5%	A	Q466	FQTC0009-01	TRANSISTOR 2SC4099 T106	A
L464	LA003-330JF	COIL 33UH 5%	A	Q467	FQTC0009-01	TRANSISTOR 2SC4099 T106	A
L465	LA003-151JF	COIL 150UH 5%	A	Q468	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
L466	LA003-151JF	COIL 150UH 5%	A	Q469	FQTP0003-01	D. TRANSISTOR DTA144EE-TL	A
L467	LA003-120JF	COIL 12UH 5%	A	Q470	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
L468	LA003-101JF	COIL 100UH 5%	A	Q471	FQTA0008-01	TRANSISTOR 2SA1774TL	A
L469	LA003-5R6JF	COIL 5.6UH 5%	A	Q472	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
L470	LA003-101JF	COIL 100UH 5%	A	Q473	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
L471	LA003-151JF	COIL 150UH 5%	A	Q474	FQTA0008-01	TRANSISTOR 2SA1774TL	A
L472	LA007-220KA	COIL 22UH 10% Q20	A	Q475	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
L473	LA007-101KA	COIL 100UH 10% Q20	A	Q476	FQTA0008-01	TRANSISTOR 2SA1774TL	A
L474	LA003-560JF	COIL 56UH 5%	A	Q477	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
L475	LA007-101KA	COIL 100UH 10% Q20	A	Q478	FQTA0008-01	TRANSISTOR 2SA1774TL	A
L476	LA003-820JF	COIL 82UH 5%	A	Q479	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A
L477	LA007-221KA	COIL 220UH 10% Q20	A	Q480	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
L478	LA003-3R3JF	COIL 3.3UH 5%	A	Q481	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A
L479	LA003-181JF	COIL 180UH 5% Q20	A	Q482	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A
L480	LA003-560JF	COIL 56UH 5%	A	Q483	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
L482	LA003-101JF	COIL 100UH 5%	A	Q484	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
L483	LA003-180JF	COIL 18UH 5% Q30	A	Q485	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
L484	LA007-101KA	COIL 100UH 10% Q20	A	Q486	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A
L485	LA003-220JF	COIL 22UH 5% Q30	A	Q487	FQTA0008-01	TRANSISTOR 2SA1774TL	A
L486	LA007-101KA	COIL 100UH 10% Q20	A	Q488	FQTA0008-01	TRANSISTOR 2SA1774TL	A
L487	LA007-221KA	COIL 220UH 10% Q20	A	Q489	FQTP0003-01	D. TRANSISTOR DTA144EE-TL	A
L701	LA007-101KA	COIL 100UH 10% Q20	A	Q490	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
L1801	LA007-101KA	COIL 100UH 10% Q20	A	Q491	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
----- TRANSISTOR -----				Q492	FQTN0010-01	W. TRANSISTOR XP6501-TX	A
Q451	FQTB0008-01	TRANSISTOR 2SB798-T1	A	Q493	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
Q452	FQTC0008-01	TRANSISTOR 2SC4617 TL	A	Q495	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A
				Q496	FQTA0008-01	TRANSISTOR 2SA1774TL	A
				Q701	FQTA0008-01	TRANSISTOR 2SA1774TL	A
				Q702	FQTA0008-01	TRANSISTOR 2SA1774TL	A
				Q703	FQTP0003-01	D. TRANSISTOR DTA144EE-TL	A
				Q704	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A
				Q705	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
				Q706	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
				Q707	FQTC0008-01	TRANSISTOR 2SC4617 TL	A
				Q708	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A
				Q709	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A
				Q710	FQTP0003-01	D. TRANSISTOR DTA144EE-TL	A
				Q711	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A
				Q712	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A
				Q713	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A
				Q714	FQTP0003-01	D. TRANSISTOR DTA144EE-TL	A

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
Q1005	FQTA0018-03	TRANSISTOR 2SA1362-G-TE85L	A	R507	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A
Q1008	FQTN0008-01	D. TRANSISTOR DTC114EE TL	A	R508	REB03-621JC	RESISTOR 620 1/16W 5%	A
	(8-729-928-91)			R509	REB03-301JC	RESISTOR 300 1/16W 5%	A
Q1801	FQTA0008-01	TRANSISTOR 2SA1774TL	A	R510	REB03-271JC	RESISTOR 270 1/16W 5%	A
Q1802	FQTC0008-01	TRANSISTOR 2SC4617 TL	A	R511	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
Q1803	FQTC0008-01	TRANSISTOR 2SC4617 TL	A				
Q1804	FQTC0008-01	TRANSISTOR 2SC4617 TL	A	R512	REB03-134JC	RESISTOR 130K 1/16W 5%	A
Q1805	FQTN0006-01	D. TRANSISTOR DTC144EE-TL	A	R513	REB03-471JC	RESISTOR 470 1/16W 5%	A
	(8-729-928-82)			R514	REB03-105JC	RESISTOR 1M 1/16W 5%	A
Q1807	FQTC0008-01	TRANSISTOR 2SC4617 TL	A	R515	REB03-183JC	RESISTOR 18K 1/16W 5%	A
				R516	REB03-223JC	RESISTOR 22K 1/16W 5%	A
----- RESISTOR -----				R517	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R451	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R518	REB03-183JC	RESISTOR 18K 1/16W 5%	A
R452	REB03-750JC	RESISTOR 75 1/16W 5%	A	R519	REB03-474JC	RESISTOR 470K 1/16W 5%	A
R453	REB03-390JC	RESISTOR 39 1/16W 5%	A	R520	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R454	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R521	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R455	REB03-390JC	RESISTOR 39 1/16W 5%	A				
R456	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A	R522	REB03-393JC	RESISTOR 39K 1/16W 5%	A
R457	REB03-224JC	RESISTOR 220K 1/16W 5%	A	R523	REB03-622JC	RESISTOR 6.2K 1/16W 5%	A
R458	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R524	REB03-562JC	RESISTOR 5.6K 1/16W 5%	A
R459	REB03-3R3JC	RESISTOR 3.3 1/16W 5%	A	R525	REB03-0000C	RESISTOR 0 1/16W 5%	A
R460	REB03-562JC	RESISTOR 5.6K 1/16W 5%	A	R526	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R461	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R527	REB03-122JC	RESISTOR 1.2K 1/16W 5%	A
R462	REB03-183JC	RESISTOR 18K 1/16W 5%	A	R528	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R463	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R529	REB03-152JC	RESISTOR 1.5K 1/16W 5%	A
R464	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R530	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A
R465	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R531	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A
R466	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R532	REB03-471JC	RESISTOR 470 1/16W 5%	A
R467	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R533	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R468	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A	R534	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R469	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R535	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R470	REB03-0000C	RESISTOR 0 1/16W 5%	A	R536	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R471	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R537	REB03-101JC	RESISTOR 100 1/16W 5%	A
R472	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R538	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A
R473	REB03-471JC	RESISTOR 470 1/16W 5%	A	R539	REB03-474JC	RESISTOR 470K 1/16W 5%	A
R474	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R540	REB03-331JC	RESISTOR 330 1/16W 5%	A
R475	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R541	REB03-331JC	RESISTOR 330 1/16W 5%	A
R476	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R542	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R477	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R543	REB03-151JC	RESISTOR 150 1/16W 5%	A
R479	REB03-471JC	RESISTOR 470 1/16W 5%	A	R544	REB03-561JC	RESISTOR 560 1/16W 5%	A
R480	REB03-152JC	RESISTOR 1.5K 1/16W 5%	A	R545	REB03-331JC	RESISTOR 330 1/16W 5%	A
R481	REB03-221JC	RESISTOR 220 1/16W 5%	A	R546	REB03-150JC	RESISTOR 15 1/16W 5%	A
R482	REB03-223JC	RESISTOR 22K 1/16W 5%	A	R547	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R483	REB03-333JC	RESISTOR 33K 1/16W 5%	A	R548	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R484	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R549	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R486	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R550	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R487	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A	R551	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R488	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R552	REB03-221JC	RESISTOR 220 1/16W 5%	A
R489	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R553	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R490	REB03-821JC	RESISTOR 820 1/16W 5%	A	R554	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R491	REB03-561JC	RESISTOR 560 1/16W 5%	A	R555	REB03-471JC	RESISTOR 470 1/16W 5%	A
R492	REB03-331JC	RESISTOR 330 1/16W 5%	A	R556	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R494	REB03-123JC	RESISTOR 12K 1/16W 5%	A	R557	REB03-821JC	RESISTOR 820 1/16W 5%	A
R495	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R558	REB03-474JC	RESISTOR 470K 1/16W 5%	A
R496	REB03-750JC	RESISTOR 75 1/16W 5%	A	R559	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R497	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R560	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R498	REB03-121JC	RESISTOR 120 1/16W 5%	A	R561	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R499	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R562	REB03-391JC	RESISTOR 390 1/16W 5%	A
R500	REB03-331JC	RESISTOR 330 1/16W 5%	A	R563	REB03-752JC	RESISTOR 7.5K 1/16W 5%	A
R501	REB03-471JC	RESISTOR 470 1/16W 5%	A	R564	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R502	REB03-823JC	RESISTOR 82K 1/16W 5%	A	R565	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R503	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A	R566	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R504	REB03-561JC	RESISTOR 560 1/16W 5%	A	R567	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R505	REB03-561JC	RESISTOR 560 1/16W 5%	A	R568	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R506	REB03-152JC	RESISTOR 1.5K 1/16W 5%	A	R569	REB03-223JC	RESISTOR 22K 1/16W 5%	A
				R570	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
				R571	REB03-102JC	RESISTOR 1K 1/16W 5%	A

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF120SW PARTS LIST

FVA

Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
R572	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R637	REB03-272JC	RESISTOR 2.7K 1/16W 5%	A
R573	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R638	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A
R574	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A	R639	FRE011-104F	RESISTOR 100K 1/16W 1%	A
R575	REB03-0000C	RESISTOR 0 1/16W 5%	A	R640	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A
R576	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R641	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R577	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A	R642	REB03-561JC	RESISTOR 560 1/16W 5%	A
R578	REB03-124JC	RESISTOR 120K 1/16W 5%	A	R646	REB03-0000C	RESISTOR 0 1/16W 5%	A
R579	REB03-333JC	RESISTOR 33K 1/16W 5%	A	R647	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R580	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A	R648	REB03-621JC	RESISTOR 620K 1/16W 5%	A
R581	REB03-821JC	RESISTOR 820 1/16W 5%	A	R649	REB03-392JC	RESISTOR 3.9K 1/16W 5%	A
R582	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R650	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R583	REB03-181JC	RESISTOR 180 1/16W 5%	A	R651	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R584	FRE011-122F	RESISTOR 1.2K 1/16W 1%	A	R701	REB03-105JC	RESISTOR 1M 1/16W 5%	A
R585	FRE011-471F	RESISTOR 470 1/16W 1%	A	R702	REB03-823JC	RESISTOR 82K 1/16W 5%	A
R586	REB03-822JC	RESISTOR 8.2K 1/16W 5%	A	R703	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R587	FRE011-332F	RESISTOR 3.3K 1/16W 1%	A	R704	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R588	REB03-0000C	RESISTOR 0 1/16W 5%	A	R705	REB03-471JC	RESISTOR 470 1/16W 5%	A
R589	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R706	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R590	REB03-821JC	RESISTOR 820 1/16W 5%	A	R707	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R591	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R708	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R592	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R709	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R593	REB03-821JC	RESISTOR 820 1/16W 5%	A	R710	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R594	REB03-104JC	RESISTOR 100K 1/16W 5%	A	R711	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R595	REB03-183JC	RESISTOR 18K 1/16W 5%	A	R712	REB03-103JC	RESISTOR 10K 1/16W 5%	A
R596	REB03-471JC	RESISTOR 470 1/16W 5%	A	R713	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R597	REB03-471JC	RESISTOR 470 1/16W 5%	A	R714	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A
R598	REB03-682JC	RESISTOR 6.8K 1/16W 5%	A	R715	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R599	REB03-182JC	RESISTOR 1.8K 1/16W 5%	A	R716	REB03-562JC	RESISTOR 5.6K 1/16W 5%	A
R600	REB03-561JC	RESISTOR 560 1/16W 5%	A	R717	REB03-0000C	RESISTOR 0 1/16W 5%	A
R601	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R718	REB03-153JC	RESISTOR 15K 1/16W 5%	A
R602	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A	R719	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R603	REB03-470JC	RESISTOR 47 1/16W 5%	A	R720	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A
R604	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R721	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R605	REB03-221JC	RESISTOR 220 1/16W 5%	A	R722	FRE011-104F	RESISTOR 100K 1/16W 1%	A
R606	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R723	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R607	FRE011-273F	RESISTOR 27K 1/16W 1%	A	R724	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R608	FRE011-203F	RESISTOR 20K 1/16W 1%	A	R725	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R609	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R726	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R610	REB03-821JC	RESISTOR 820 1/16W 5%	A	R727	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R611	REB03-473JC	RESISTOR 47K 1/16W 5%	A	R728	REB03-333JC	RESISTOR 33K 1/16W 5%	A
R612	REB03-221JC	RESISTOR 220 1/16W 5%	A	R729	REB03-153JC	RESISTOR 15K 1/16W 5%	A
R613	REB03-223JC	RESISTOR 22K 1/16W 5%	A	R730	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R614	REB03-223JC	RESISTOR 22K 1/16W 5%	A	R731	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R615	REB03-821JC	RESISTOR 820 1/16W 5%	A	R732	REB03-152JC	RESISTOR 1.5K 1/16W 5%	A
R616	REB03-221JC	RESISTOR 220 1/16W 5%	A	R733	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R617	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R734	REB03-121JC	RESISTOR 120 1/16W 5%	A
R618	REB03-821JC	RESISTOR 820 1/16W 5%	A	R735	REB03-122JC	RESISTOR 1.2K 1/16W 5%	A
R619	REB03-181JC	RESISTOR 180 1/16W 5%	A	R736	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R620	REB03-821JC	RESISTOR 820 1/16W 5%	A	R737	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R621	REB03-821JC	RESISTOR 820 1/16W 5%	A	R1015	REB03-104JC	RESISTOR 100K 1/16W 5%	A
R622	FRE011-163F	RESISTOR 16K 1/16W 1%	A	R1016	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R623	FRE011-153F	RESISTOR 15K 1/16W 1%	A	R1017	REB03-0000C	RESISTOR 0 1/16W 5%	A
R624	REB03-152JC	RESISTOR 1.5K 1/16W 5%	A	R1018	REB03-0000C	RESISTOR 0 1/16W 5%	A
R625	REB03-101JC	RESISTOR 100 1/16W 5%	A	R1021	REB03-0000C	RESISTOR 0 1/16W 5%	A
R626	REB03-102JC	RESISTOR 1K 1/16W 5%	A	R1022	REB03-0000C	RESISTOR 0 1/16W 5%	A
R627	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R1802	REB03-562JC	RESISTOR 5.6K 1/16W 5%	A
R628	REB03-471JC	RESISTOR 470 1/16W 5%	A	R1803	REB03-391JC	RESISTOR 390 1/16W 5%	A
R629	REB03-101JC	RESISTOR 100 1/16W 5%	A	R1804	REB03-102JC	RESISTOR 1K 1/16W 5%	A
R630	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A	R1805	REB03-221JC	RESISTOR 220 1/16W 5%	A
R631	REB03-103JC	RESISTOR 10K 1/16W 5%	A	R1806	REB03-155JC	RESISTOR 1.5M 1/16W 5%	A
R632	REB03-682JC	RESISTOR 6.8K 1/16W 5%	A	R1807	REB03-152JC	RESISTOR 1.5K 1/16W 5%	A
R633	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A	R1808	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A
R634	REB03-332JC	RESISTOR 3.3K 1/16W 5%	A	R1809	REB03-223JC	RESISTOR 22K 1/16W 5%	A
R635	REB03-562JC	RESISTOR 5.6K 1/16W 5%	A	R1810	REB03-183JC	RESISTOR 18K 1/16W 5%	A
R636	REB03-222JC	RESISTOR 2.2K 1/16W 5%	A	R1811	REB03-363JC	RESISTOR 36K 1/16W 5%	A

When indicating parts by reference number, please include the board name.

FVA	FVR	FZM
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Ref.No.	Part No.	Description	Price	Ref.No.	Part No.	Description	Price
R1812	REB03-123JC	RESISTOR 12K 1/16W 5%	A	*****			
R1813	REB03-333JC	RESISTOR 33K 1/16W 5%	A		CB0055-C302	FZM PWB ASSY	K
R1814	REB03-562JC	RESISTOR 5.6K 1/16W 5%	A		*****		
R1815	REB03-103JC	RESISTOR 10K 1/16W 5%	A		----- SWITCH -----		
R1816	REB03-223JC	RESISTOR 22K 1/16W 5%	A	SW1651	FZ00231-200	TACT SWITCH	A
				SW1652	FZ00231-200	TACT SWITCH	A
R1817	REB03-562JC	RESISTOR 5.6K 1/16W 5%	A		----- WIRE HARNESS -----		
R1818	REB03-102JC	RESISTOR 1K 1/16W 5%	A	W1651	FZ00164-200	WIRE HARNESS WH-5 BO-SO 3P FZM-FCA	A
R1819	REB03-103JC	RESISTOR 10K 1/16W 5%	A				
R1821	REB03-223JC	RESISTOR 22K 1/16W 5%	A				
R1822	REB03-682JC	RESISTOR 6.8K 1/16W 5%	A				
R1823	REB03-103JC	RESISTOR 10K 1/16W 5%	A				
R1825	REB03-333JC	RESISTOR 33K 1/16W 5%	A				
R1826	REB03-272JC	RESISTOR 2.7K 1/16W 5%	A				
R1829	REB03-472JC	RESISTOR 4.7K 1/16W 5%	A				
R1830	REB03-0000C	RESISTOR 0 1/16W 5%	A				
R1831	REB03-0000C	RESISTOR 0 1/16W 5%	A				
R1832	REB03-223JC	RESISTOR 22K 1/16W 5%	A				
R1833	REB03-333JC	RESISTOR 33K 1/16W 5%	A				
		----- VARIABLE RESISTOR -----					
RV451	FRU007-102N	V.RESISTOR 1K B 25% 2.2MM	A				
RV452	FRU007-102N	V.RESISTOR 1K B 25% 2.2MM	A				
RV453	FRU007-102N	V.RESISTOR 1K B 25% 2.2MM	A				
RV454	FRU007-102N	V.RESISTOR 1K B 25% 2.2MM	A				
RV455	FRU007-473N	V.RESISTOR 47K B 25% 2.2MM	A				
RV456	FRU007-102N	V.RESISTOR 1K B 25% 2.2MM	A				
RV457	FRU007-472N	V.RESISTOR 4.7K B 25% 2.2MM	A				
RV458	FRU007-223N	V.RESISTOR 22K B 25% 2.2MM	A				
RV459	FRU007-473N	V.RESISTOR 47K B 25% 2.2MM	A				
RV460	FRU007-102N	V.RESISTOR 1K B 25% 2.2MM	A				
RV461	FRU007-102N	V.RESISTOR 1K B 25% 2.2MM	A				
RV701	FRU007-103N	V.RESISTOR 10K B 25% 2.2MM	A				
RV702	FRU007-472N	V.RESISTOR 4.7K B 25% 2.2MM	A				
VR1801	FRU007-103N	V.RESISTOR 10K B 25% 2.2MM	A				
VR1802	FRU007-103N	V.RESISTOR 10K B 25% 2.2MM	A				
		----- WIRE HARNESS -----					
W1801	FZ00427-200	WIRE HARNESS WH-6U BO-SO 4P FVA-FMC	B				
		----- FLEXIBLE BOARD -----					
W451	FZ00190-100	FPC ASSY, FP-9	D				
W452	FZ00188-100	FPC ASSY, FP-7	B				
		----- CRYSTAL VIBRATOR -----					
X451	K1577-11721	X'TAL HC-49/U-S	B				
X701	FZ00154-100	X'TAL HC-49U/S	B				

	CB0055-F601	FVR PWB ASSY	N.S.				

		----- VARIABLE RESISTOR -----					
RV1751	FRV001-104B	V.RESISTOR	D				
		----- WIRE HARNESS -----					
W1751	FZ00167-200	WIRE HARNESS WH-7 BO-SO 4P FUR-FSW	B				

When indicating parts by reference number, please include the board name.

4 INDEX

FF120SW PARTS LIST

Index for Packing and Accessories and Mechanical Parts

This INDEX is intended to find the corresponding Ref. No. keying the Part No.

Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
1-135-179-21	E56	3-739-808-01	D07	BB00247-101	A17	FZ00453-500	13B
1-216-817-11	E55	3-739-872-01	D10	BB00249-100	A12	FZ00455-100	C11
1-541-607-21	F23	3-739-873-01	D11	BB00265-100	B11	FZ00471-400	17A
1-571-647-11	E08	3-743-633-01	F21	BB00266-100	B12	FZ00471-900	17B
1-572-611-11	D27	3-749-304-01	D15	BB00267-100	B13	FZ00472-100	16
1-627-722-11	E02	3-940-616-03	E15	BB00281-102	C21	FZ00474-100	14
3-315-384-31	G10	3-941-601-01	E49	BB00282-300	C22	FZ00506-300	A22
3-315-414-31	E40	3-941-980-01	G20	BB00301-300	C09	FZ00507-200	11A
3-321-393-11	D22	3-942-901-01	F30	BB00470-300	C35	FZ00562-100	11B
3-325-290-21	F14	3-942-924-01	D24	BB00576-102	C19	FZ00563-100	11C
3-331-007-11	D17	3-943-055-01	D23	BB00625-100	C26	FZ00564-100	11D
3-331-007-11	E23	3-943-439-02	D21	BB00666-100	A19	G0000-15800	10
3-331-007-11	G05	3-943-822-01	E27	BB00697-100	C31	K1542-12611	A03
3-509-127-00	D19	7-624-102-04	D12	BB01052-101	C12	K3703-83401	18
3-701-439-11	E04	8-719-951-03	E10	BB01055-101	C17	KF7962-9350	08
3-703-816-51	F18	8-729-907-25	E09	BB01059-100	A28	X-3727-903-1	F11
3-727-807-01	F04	8-835-329-12	F26	BB01076-100	C24	X-3727-904-1	F12
3-727-809-01	F03	A-7010-369-A	E05	BB01081-100	A10	X-3727-906-1	F10
3-727-927-01	E17	A-7040-148-A	E18	BB01084-100	B05	X-3727-914-4	E42
3-727-929-01	G03	A-7040-153-A	G01	BB01085-100	B04	X-3727-915-1	F15
3-727-939-01	E52	A-7040-164-A	D18	BB01086-100	B10	X-3727-920-1	D05
3-727-946-01	D28	A-7040-203-C	F19	BB01087-100	B06	X-3727-924-2	G12
3-727-954-01	D25	A-7040-222-D	F16	BB01089-100	B14	X-3727-926-1	E39
3-727-957-01	D26	A-7040-240-A	E16	BB01091-100	B19	X-3727-930-1	G15
3-728-015-01	G13	A-7040-252-A	E51	BB01097-100	B15	X-3727-931-1	G16
3-728-023-01	E29	A-7040-253-A	F06	BB01098-100	B08	X-3727-936-2	E30
3-728-048-01	E28	A-7040-255-A	D01	BB01099-100	B20	X-3727-940-1	E19
3-728-053-01	E31	A-7040-258-A	E13	BB01111-100	C16	X-3727-941-1	E32
3-728-062-01	E33	A-7040-262-C	E26	BB01148-300	A11	X-3727-942-1	G02
3-728-065-01	G08	A-7040-263-A	E24	BB01149-100	09	X-3727-947-1	E21
3-728-091-01	E36	A-7040-264-D	D20	BB01152-400	03	X-3727-948-1	E35
3-728-091-01	G14	A-7040-289-A	F29	BB01152-500	04	X-3727-951-2	E03
3-728-103-11	D29	A-7048-214-A	F01	BB01155-100	02	X-3727-952-1	E41
3-728-103-11	E12	A-7049-197-A	F05	BB01158-200	05	X-3727-994-1	E20
3-728-108-01	F17	A-7049-198-A	F05	BB01175-200	19	X-3728-005-1	E38
3-728-108-41	F02	A-7061-238-B	E06	BB01396-100	15	X-3728-009-2	F20
3-728-109-01	G19	A-7085-012-A	E07	BB01470-100	07	X-3739-809-1	D13
3-728-119-01	F09	ATA1421-5NN	C32	BB01679-100	20	X-3749-001-1	E14
3-728-126-01	D09	ATA1422-0NC	C13	BB01680-100	21	X-3940-675-1	E47
3-728-126-01	F27	ATA1735-0NC	C41	BF00008-200	A08	X-3940-677-1	D02
3-728-144-01	G04	ATA2022-5NC	C36	BF00144-200	C01	X-3940-678-1	D08
3-728-145-01	D03	ATA2023-0NC	C06	BF00146-400	A07	X-3940-680-1	D04
3-728-146-01	D06	ATA2023-0NC	C44	BF00147-400	B01	X-3940-733-1	E34
3-728-148-11	D30	ATA2024-0NC	A27	BF00150-100	A01	X-3940-991-1	D14
3-728-148-11	F07	ATA2024-0NC	B18	BF00186-100	B03	X-3941-027-1	F25
3-728-148-11	G06	ATA2024-0NC	C20	BF00188-100	C38		
3-728-149-01	F13	ATB2001-2ND	B09	BU00107-200	12		
3-728-154-01	G18	ATB2001-6ND	C37	BU00114-100	C14		
3-728-190-01	G07	ATG1735-0NC	C08	BU00115-100	C07		
3-728-206-01	E48	ATG2025-0ND	A05	BU00118-100	A02		
3-728-212-01	G17	ATG2026-0ND	A06	BU00119-300	A23		
3-728-213-01	G11	ATG2026-0ND	B07	BU00120-400	C33		
3-728-226-01	E25	ATG2026-0ND	C05	BU00121-100	C34		
3-728-228-03	G09	ATL2023-0ND	A15	BU00129-301	B02		
3-728-231-06	F08	ATL2023-0ND	B16	CB0052-B202	A04		
3-728-244-01	E54	ATL2023-0ND	C23	CB0052-C103	C15		
3-728-277-01	D16	ATL2025-0ND	A26	CB0053-B103	C27		
3-728-290-01	E22	ATL2028-0ND	A25	CB0054-B202	C03		
3-732-046-01	E11	AWB2200-0BN	C43	CB0054-C103	C04		
3-732-064-01	F28	AZF0000-121	06	CB0054-C303	C28		
3-732-068-01	E37	BB00215-200	A21	CB0055-B201	A09		
3-732-076-01	E44	BB00220-501	B17	CB0055-C302	A20		
3-732-077-01	E43	BB00225-104	C39	CB0055-D401	C25		
3-732-078-01	E45	BB00227-100	C29	CB0055-E502	C42		
3-732-079-01	E46	BB00228-100	C40	DA0119-0100	C18		
3-732-084-01	F24	BB00232-200	A16	FZ00027-100	01		
3-732-085-01	E53	BB00237-200	A14	FZ00198-200	C30		
3-732-087-31	F22	BB00238-200	A24	FZ00244-300	C02		
3-732-089-01	E50	BB00242-200	A13	FZ00430-103	C10		
3-739-807-01	E01	BB00243-101	A18	FZ00453-400	13A		